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No plate xxxii, and one other
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THE DECORATIVE PAINTERS' AND GLAZIERS' GUIDE;

CONTAINING
THE MOST APPROVED METHODS OF IMITATING
OAK, MAHOGANY, MAPLE, ROSE, CEDAR, CORAL,
AND EVERY OTHER KIND OF FANCY WOOD;
VERD ANTIQUE, DOVE, SIENNA, PORPHYRY, WHITE VEINED, AND OTHER MARBLES;
IN OIL OR DISTEMPER COLOUR:
DESIGNS FOR DECORATING APARTMENTS,
IN ACCORDANCE WITH THE VARIOUS STYLES OF ARCHITECTURE;
WITH DIRECTIONS FOR STENCILING, AND PROCESS FOR DESTROYING DAMP IN WALLS:
ALSO
A COMPLETE BODY OF INFORMATION
ON THE
ART OF STAINING AND PAINTING ON GLASS;
PLANS FOR THE ERECTION OF APPARATUS FOR ANNEALING IT;
AND THE
METHOD OF JOINING FIGURES TOGETHER BY LEADING,
WITH
EXAMPLES FROM ANCIENT WINDOWS.

BY NATHANIEL WHITTOCK,
ASSISTED BY THE MOST EXPERIENCED PRACTICAL ARTIZANS IN EVERY DEPARTMENT OF DECORATIVE PAINTING AND GLAZING.

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PREFACE.

SO great is the supply of information at the present period, that it is usual to preface almost every Work on the various branches of art or science, with apologies for publishing another book, when so many on the same subjects have previously issued from the press. This is a task which the Author of this Work is spared, as the greater part of the information contained in the following pages, so far from being common, has been carefully kept even from those who eagerly desire to attain it.

The Art of Staining and Painting on Glass, has hitherto been in the hands of a few who have profited too much by the exclusive practice of it, willingly to impart any of the secrets of the art to others; but in the present day, when the liberal spirit of the age calls for embellishments of every description, and when there are thousands of artizans, who only require to have the mysteries of this elegant art thrown open to them, to practise it with honour to the profession and advantage to themselves, it was deemed a sufficient reason for publishing a complete compendium of information on the Art of Staining Glass, in a plain, practical, and familiar style, so that the workman, whose mind and time have been too much occupied by his business to attain a knowledge of even the terms used in chemistry and experimental philosophy, may yet understand the true and least expensive method of performing many of the highest chemical experiments in dissolving and precipitating metals for the purpose of producing colours for staining glass. It is for this reason that all scientific or technical terms that might by possibility be misunderstood by the reader, have been sedulously avoided; and though the scholar may complain of the absence of fine writing, the practitioner will find, what to him is of far more importance, plain directions, on every thing connected with painting, staining, or burning glass, as the recipes given in the publication are not transcripts from old authors, but founded on a series of actual experiments fully tried and approved expressly for this work.

The directions given for the Imitation of Wood or Marble in painting, will be found particularly useful, and are the most modern methods of producing beautiful imitations of Oak, Mahogany, Maple, Satin, Walnut, Cedar, Rose Wood, &c. as practised by the first masters of the art.

The Plates alone of this Work will be a great acquisition to every ornamental painter, as they must at all times be highly useful as patterns and examples; being executed with the greatest fidelity and elegance by an artist of established reputation, and no expense having been spared in colouring them where it was required. The whole is presented to the Trade with a thorough confidence that it furnishes a useful body of information which has hitherto been a desideratum to the Decorative Painter and Glazier.

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Page 47, line 6, *for* J. Scott, Esq. *read* Stephen Jarret, Esq. ; line 13, *for* Ashmolean Museum, *read* Radcliffe Library.

Page 54, line 10, *for* Plate XXIII., *read* Plate XXII. ; line 20, *for* Plate XXIII., *read* Plate XXII.

Page 55, line 11, *for* Plate XXIII., *read* Plate XXII. ; line 24, *for* Fig. 1. Plate XXIV., *read* Plate XVIII.

Page 56, line 8, *for* Fig. 2. Plate XXIV., *read* Plate XVIII.

Page 79, line 17, *for* Plate XXIV., *read* Plate XXVI.

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THE DECORATIVE PAINTERS' AND GLAZIERS' GUIDE.

PART I.

IMITATIONS OF WOOD, MARBLE, &c.

CHAPTER I.

INTRODUCTORY REMARKS ON THE NATURE AND PROPERTIES OF THE VARIOUS PIGMENTS THAT PRODUCE COLOURS, THE VEHICLES FOR USING THEM, THE PREPARATION OF GROUNDS, &c.

The house painter who wishes to attain a correct knowledge of his business, should become acquainted with the nature and properties of the materials he is constantly using, particularly if he aims at becoming an ornamental painter; as the subjects he will then be employed on will require greater care in the selection and preparation of the various substances from which colours are produced. The facility with which ready prepared colours can be procured at the respectable colour shops in London and other large towns, has led to the great neglect of information on the first principle of painting; and it is not one house painter in twenty who is acquainted with the pigments and vehicles necessary to his business. It is true colours can be prepared much better in large than in small quantities, and therefore when an opportunity offers, it will in most cases be a saving of both time and money to purchase the materials of the manufacturer of colours, particularly now colour mills are so much improved. Yet it is necessary that the painter should know the properties and qualities of the various substances he requires, in order that he may judge of their fitness for every kind of painting, and likewise that he should know how to prepare them himself, should circumstances require it.

The colours used in oil painting, or painting in distemper, are called pigments, by which is meant all such solid bodies as require to be mixed with some fluid before they can be spread on, or made to adhere to, any surface that is to be painted. The colours may be classed under the following heads:—White, Black, Red, Blue, Yellow, Green, Orange, Purple, and Brown; from these every tint that can be required in any kind of painting, may be obtained by mixing one colour with another.

WHITE.

WHITE LEAD is the body colour for most whites used in oil painting, and is easily prepared by exposing narrow slips of common lead to the fumes of vinegar. Those who may wish to prepare it, should get an earthen vessel with a cover to it, and an earthen colander, with bars instead of holes, made to fit the vessel; the colander should go about half way down; then pour vinegar into the vessel till it nearly reaches the bars of the colander. On the colander place narrow slips of thin common lead rolled up into scrolls; these may be placed all over the bars of the colander, taking care that they do not touch each other. The pot is then placed over a gentle heat, and the fumes of the vinegar corroding the lead reduces it to a white calx ready for use.

FLAKE WHITE is lead corroded much in the same manner, with other acids: it is expensive; but in some work it is required, as it is a finer colour than the common white lead, and retains the colour for a greater length of time. These whites will be found sufficient for any work required in oil painting, as it applies to the decoration of houses.

The portrait and historical painter uses a variety of others, according to his subjects, produced from bones, pearl, oyster shells, egg shells, &c.

Spanish White, Bougival White, Gypsum, Rouen White, and White of Troyes, are all preparations from the clay or chalk of various countries, as their names import, and are used in painting in distemper; the Spanish white is the common whiting which is made from chalk neutralized by the addition of water in which alum has been dissolved, and afterwards washed in several waters: none of the above pigments incorporate well with oil, nor do they possess lustre or durability when used with oil or varnish; but if used with size, and suffered to dry, may be varnished to look quite as bright as oil colour.

BLACK.

Lamp Black is the soot of oil collected as it is burning; it is a brownish black if not properly calcined after it is collected. This black can be made from the soot of resinous or fat parts of fir trees: it will mix well with either oil or water, and will answer for most purposes where black is required, its only fault being its fatness, which makes it a long time drying; but this can be corrected in using it with dryers.

Ivory Black is the coal of burnt ivory or bone; it is a very rich colour if obtained pure; but is seldom found in that state, as it is very expensive, and lamp black will answer the purpose quite as well for any work required in house painting. Artists who are particular in their colours prepare black from a variety of substances, such as charcoal, vine leaves, peach stones, vine twigs, &c.

RED.

Vermilion is a bright scarlet pigment formed of quicksilver and sulphur; it can only be produced in perfection in large quantities, which require an expensive apparatus: it is one of the most useful colours in every kind of painting, in oil or water, and the colour may be depended on for durability; but as it is an expensive preparation, it is commonly adulterated with red lead, which causes it to lose its brightness and turn black; care must be taken, therefore, in all works where the colour is required to remain bright, that the vermilion is obtained pure.

Red Lead is lead calcined to an oxide, which being ground to powder is exposed to a great degree of heat in a furnace till it becomes a pale red: the bright orange of this colour might render it serviceable in oil painting if it was not so liable to turn black; but as it never can be depended on, it is only mentioned here to be avoided in painting where durability of colour is required. It stands better in water than in oil, and is sometimes used in painting in distemper, and in scene painting.

Venetian Red is a native red ochre rather inclining to the scarlet than the crimson hue; it is an excellent standing colour, and requires no other preparation than to be well ground with the oil with which it is used.

Spanish Brown is a native earth found in the state in which it is used, and requires no other preparation than being freed from stones and filth.

Lake; this is the most beautiful of the dark reds, and is a pure transparent colour that requires great care in making. This colour is obtained by decomposing alum and tinging it with some vegetable dye, such as is obtained from cochineal or Brasil wood; and as both these tinges are used in dying cloth scarlet, the clippings of scarlet cloth are sometimes used in forming lake, as this colour is very difficult to manufacture; it is always better and cheaper for the painter to purchase what quantity he requires, taking care to have the best that can be procured. Lake is one of the finest glazing colours, and will be found of great use in the imitation of fancy woods and marbles.

Rose Pink is whiting tinged with the same substances that produce lake; it is a fine colour, and is used with good effect in scenic decorations, where the colour is not required to stand for any length of time; but in house painting, either in water or oil, it is sure to fly; in some cases, used as a glazing colour and afterwards varnished, it will stand pretty well.

Red Ochre is the Oxford yellow ochre made red by calcination; it is useful in oil or water colours, and is sure to stand.

BLUE.

Ultramarine is the finest blue that can be produced; it is a preparation of calcined lapis lazuli; from its high price it can seldom be used in any quantity, but in very fine work is sometimes essential: it forms a very fine opaque colour, and if used thin is a beautiful glazing colour.

Prussian Blue; this blue is the fixed sulphur of animal or vegetable coal combined with the earth of alum; it is a good blue, and can be used either in water or oil: it is a transparent colour, and requires to be mixed with white lead where a body is wanted; when used in distemper colouring, it is mixed with whiting, and is usually kept ready ground by the colourmen, under the name of damp blue.

Indigo is produced from a vegetable of the same name which grows in great abundance in the East Indies and some parts of America. This colour is not so bright as Prussian blue, and none but the best and purest is fit for oil painting.

Verditer is a transparent blue if ground in oil, and can only be rendered opaque by being mixed with white lead; it is a useful colour in painting in distemper.

YELLOW.

Yellow Ochre is a mineral earth found in many places, but in England chiefly at Shotover Hill, near Oxford; and is therefore known by the name of Oxford Ochre: when free from other earths it is a true yellow of moderate brightness, and its texture suits for all kinds of painting; it will not fly in the least, and may be used either as an opaque or transparent colour.

KING'S YELLOW is arsenic coloured with sulphur; it may be used either with oil, varnish, or size, and is a bright opaque colour: it is a yellow that will stand well, but must be used by itself, as if it is mixed with any mineral colour, such as white lead, it flies instantly; when mixed with blue it forms the most beautiful green.

DUTCH PINK is only used in distemper colouring; it is whiting tinged with a solution of French berries.

TERRA SIENNA is a native earth brought from Sienna; it is a deep warm yellow, and is a transparent colour, very useful in oil as a glazing colour, and is a valuable colour in distemper; when burnt it makes a rich brown almost approaching to red.

GREEN.

VERDIGRIS is the green most in use for common works; it is obtained from the corrosion of brass or copper by the fumes of vegetable acid, produced from the skin and pulp of grapes remaining after they have undergone a pressure for wine: it is chiefly made in the South of France, and makes by itself a blueish green; but may be mixed with Dutch pink till it becomes a true green. King's yellow and verdigris would destroy each other. When verdigris is required to be particularly fine, crystals must be procured, which is usually called distilled verdigris.

All the mineral greens are worked with great difficulty in oil, as they are not opaque colours, and require to be mixed with white lead to give them body; the minerals in both of these oppose each other, and in a short time destroy the work. Greens, both in oil or water colours, are therefore best formed of mixtures of yellow and blue that agree together in their bases; the mixtures will be pointed out as they are required in the following examples.

Orange is best produced by the combination of red and yellow, according to the tint required.

Purple may likewise be produced to any tint required, by the mixture of red and blue.

BROWN.

Umber is an ochrous earth, of a brown colour; it is transparent, and requires to be mixed with white lead to become opaque in oil; it is a very good glazing colour, and very useful in distemper.

Burnt Umber is the above pigment calcined in a crucible; it then becomes a much warmer brown: its qualities remain the same as in its raw state.

The finest brown is a pigment known by the name of vandyke brown from its being the colour that pervades the pictures painted by Vandyke. This colour can be used either in water or oil, with the latter it is mostly used as a glazing colour; it is beautifully transparent, giving richness and effect to any previous colour. In distemper it will produce the lightest or darkest tints, and will always appear a fine clear colour, free from the muddiness that is seen in other browns. To the imitator of fancy wood, vandyke brown is invaluable, as will be seen in the following chapter. Brown of any shade or tint may be produced by the mixture of red, black, and yellow.

There are many other substances used occasionally by artists to produce colour, but the above will be found amply sufficient for the decorative painter. Many of the colours used by Sir Joshua Reynolds, Romney, and other famous artists, (who were continually inventing, or rather trying to obtain colours from various pigments,) are found to fade, particularly if exposed to the weather: that painting will always be found to be most durable, that is performed with the most simple and easily procured colour.

OILS.

The vehicles for laying on and binding these colours are various, according to the nature of the work in which they are employed: the principal are oils, water, spirit of wine, and turpentine: but as water and spirit of wine alone want the proper unctious consistence for spreading the colours, and dry away totally, without leaving any glutinous substance to bind and fix such of the pigments as are of an earthy and incohering texture, gums, size, ale, milk, and other glutinous substances or fluids, have been superadded to supply the defects and render them of due consistence. Though oils simply used, are a perfect vehicle of colours in some cases; yet, as they are found to dry too slowly, means have been sought after, by the adoption of other substances, to remedy this defect, which are therefore called driers. As the knowledge of the qualities of oils and driers is of great importance to the painter in every branch of his profession, the following remarks derived from an excellent old work, called "Materia Pictoria," will be found particularly valuable.

Oils of a nature suitable to painting are the most commodious and advantageous vehicle to colours hitherto discovered. First, because the unctious consistence of them renders their being spread and layed on a surface with more evenness and expedition, than any other kind of vehicle. Secondly, because when dry they leave a strong gluten or tenacious body, that holds the colours together and defends them much more from the injuries either of the air or accidental violence than the vehicles formed of water. The principal and most general quality to be required in oils is their drying well, which, though it may be assisted by additions, is yet to be desired in the oil itself, as the effect of the pigments used in it are sometimes such as counteract the strongest driers, and occasion great delay and trouble from the work remaining wet for a great length of time; and frequently never becoming thoroughly hard. There are some oils that have this fault to an incurable degree. The next quality in oils is the limpidness, or approach to a colourless state, which is likewise very material, for where they partake of a brown or yellow colour, such brown or yellow necessarily mixes itself with the pigments; but besides the brown colour which may be visible in the oil when it is used, a great increase of it is apt to appear some time afterwards when the oil is not good. There are three changes that oils of the kind proper for painting are liable to suffer in their nature, and which affect them as vehicles, that are mentioned by painters under one term, viz. fattening, notwithstanding these several changes are brought about by very different means, and relate to very different properties in the oils.

The first is the coagulation before spoken of by the mixture of the oil with some kind of pigments improperly prepared. This indeed is called the fattening of the colours; but the real change is in the oils, and the pigments are only the means of producing it: this change is generally a separation of the oil into two different substances; the one a viscid pitch body which remains combined with the pigments, the other a thin fluid matter which divides itself from the colour and thicker part. This last appears in very various proportions under different circumstances, and in some cases it is not found at all where the pigment happens to be of a more earthy and alkaline nature; for then only a thick clammy substance, that can scarcely be squeezed out of the bladder if it is put up in one, is the result of the fattening. This fattening not only happens when oil and pigments are mixed together in bladders or vessels, but sometimes after they have been laid on the proper ground; for then, instead of drying, the separation will insue, and one part of the oil will run off in small drops or streams, while the other will remain with the colour, without shewing the least tendency to dry.

The second is the change that takes place to oils from long keeping. This, if it could be afforded by the oil manufacturer or the painter, is by far the surest and best method of purifying linseed and other oils, as by this keeping they become lighter coloured, and acquire a more unctious consistence; and though they are said to become fat, they are in a very different state from that before-mentioned, which is caused by unsuitable pigments.

The third is a change produced by artificial means; from exposing the oil a long time to the sun, whereby it is freed from its grosser and more feculent parts, and rendered colourless, and of a more thick and less fluid consistence than can be produced by any other treatment: but at the same time it is made less likely to dry, particularly when used with mineral colours, as vermilion, prussian blue, and king's yellow; it likewise becomes disqualified by other bad qualities that render it of little use as a vehicle for painting. Oils in this state are called also fat oils, though it is a change that has not the least affinity with either of the other, but on the contrary differs from both. In speaking therefore of the fattening of oils or colours, attention should be had to the not confounding these three several kinds one with the other.

Linseed Oil, from its cheapness, is almost the only oil in common use for house painting; and it may, by proper management, be made to answer for every kind of work: this oil is pressed from the seed of flax, and is best when manufactured in large quantities. The general defects in linseed oil is its brown colour and a tardiness in drying, both of which are in a much greater degree found in some parcels than others: there is also found such as, in consequence of its being mixed with the oil of some other vegetable accidentally growing near it, partakes of the nature of olive oil, and cannot be made to dry by any means whatever. The faults of colour and want of drying quality may be greatly reduced, if not entirely taken away, by keeping the oil for a length of time before it is used: it then becomes fat in the second sense of the word as before explained, and is a good vehicle for colour, without any mixture, but is generally used with a proper dryer, as it never by itself becomes sufficiently pure to use with white or other light tints, without imparting a brown colour to them.

NUT OIL is the oil of walnuts, and is much used in ornamental painting, as it is nearly colourless, and can be used with flake white, and other delicate colours, without the slightest danger of tinging them. This oil is greatly improved by keeping.

OIL OF POPPIES is a colourless oil, and is in some instances used for very delicate works where the length of time required in drying is no object; but for any case that can come under the decorative painter's notice, nut oil will answer every purpose.

OILS OF SPIKE OR LAVENDER are essential or distilled oils, obtained by distilling the spike or lavender, with water. It is used in painting only as the vehicle for enamel colours: its utility will be shewn in glass painting. It was formerly used instead of turpentine by house painters; but the latter is now generally preferred.

DRYING OILS.—A drying oil may be prepared by boiling linseed oil, either with or without the addition of other substances. The substances added to linseed oil, to make it become a drying oil, are various: and as different recipes are used by different manufacturers, some prefer one method and some another. The drying ingredients are as follow:—white vitriol, sugar of lead, litharge, seedlac, gum mastic, gum sandara, gum anime, gum copal, colcothar, and red lead. The different gums are used to form oil or spirit varnishes; and the articles generally used as driers, particularly when large quantities of oil are required, are litharge, sugar of lead, white vitriol, and red lead.

The most simple method of preparing drying oil is by boiling it for a considerable time, without any addition. This can be bought of any oilman, and if good will dry readily.

Drying oil may be prepared, for common work, by mixing one pound and a half of red lead with one gallon of linseed oil; boiling them together, and afterwards letting the oil stand a few days for the lead to sink to the bottom.

Another method.—Take one ounce and a half of white vitriol and six ounces of litharge, pound them to a fine powder, and mix them with four pounds of linseed oil; place this in an iron pot over a slow fire, so that the oil may boil, but not too briskly: let it boil till the scum ceases to be thrown up by the heat. When it has boiled sufficiently, let the oil stand in the pot to cool four or five hours, and then pour the clear oil into large-mouthed bottles, taking care that none of the fatty sediment which sinks to the bottom of the iron pot be poured in with it. Let the oil stand in the bottles a week or two, to clear itself from any feculent particles that may remain in it, and it is then fit for use.

Some oilmen prepare their drying oil by suspending a bag by a string, tied to an iron wire, that rests upon the edge of the vessel; in the bag is deposited the litharge and white vitriol. The quantity of the litharge is nearly doubled. Care must be taken that the bag is kept an inch or rather more from the bottom of the pot: it will require a longer time to boil the oil by this method, than when the litharge and vitriol are mixed with it.

A considerable drying quality may be given to linseed, and the colour much improved, without its being boiled, by mixing about one pound of white lead to a gallon of oil, and letting it stand a week or two, till the lead and the feculent parts of the oil have sunk to the bottom of the vessel in which the oil is placed. This is likewise a cheap way of purifying oil, as the lead can always be used for common purposes. The use of the gums and resins mentioned here as driers, will be stated under the head VARNISHING.

OIL OF TURPENTINE is distilled from turpentine. It is an etherial oil which quickly exhales in the air, and if mixed with either of the fat oils, linseed, nut, or poppy, in flying off carries with it the more volatile part of such oils, and causes them to dry much sooner than they otherwise would. On this account it is generally used as a drier, to mix with other oils; for which purpose it has greatly the advantage over drying oils, as it is as colourless as water.

The vehicles used for colours in distemper, are size, ale, milk, &c. articles so well known to every one, that they require no explanation.

In the following chapters the technical terms—warmth—coolness—glazing—washing—as applied to colours, are frequently used. It may therefore be necessary to explain their meaning. Colours are called warm when they contain most yellow: thus vermillion is a fine warm red, because it partakes of an orange tint; and Indian red is called cool red, as it partakes of a blue or purple tint. Cool colours are those which contain, when combined or separate, most blue. Thus yellow, the basis of all warmth in colour, becomes a cool green, by being mixed with blue. Red mixed with blue becomes a cool grey. It will easily be inferred from this explanation what is meant by warm and cold tints in every colour.

Colours which become transparent in oil, such as lake, prussian blue, umber, burnt and raw sienna, are frequently used without the admixture of white lead, or any other opaque pigment; by which means the tint, or other work of the ground on which they are laid, retains, in a great degree, its force; the thin colour spread over it, merely giving it a warmth or coolness of tone. The real colour produced in the painting is the combined effect of both. This is called glazing, and the pigments, which become transparent when ground in oil, are called glazing colours. The same effect may be produced in water colours, and is then called washing.

CHAPTER II.

IMITATION OF OAK, MAHOGANY, SATIN, ROSE WOOD, &c.

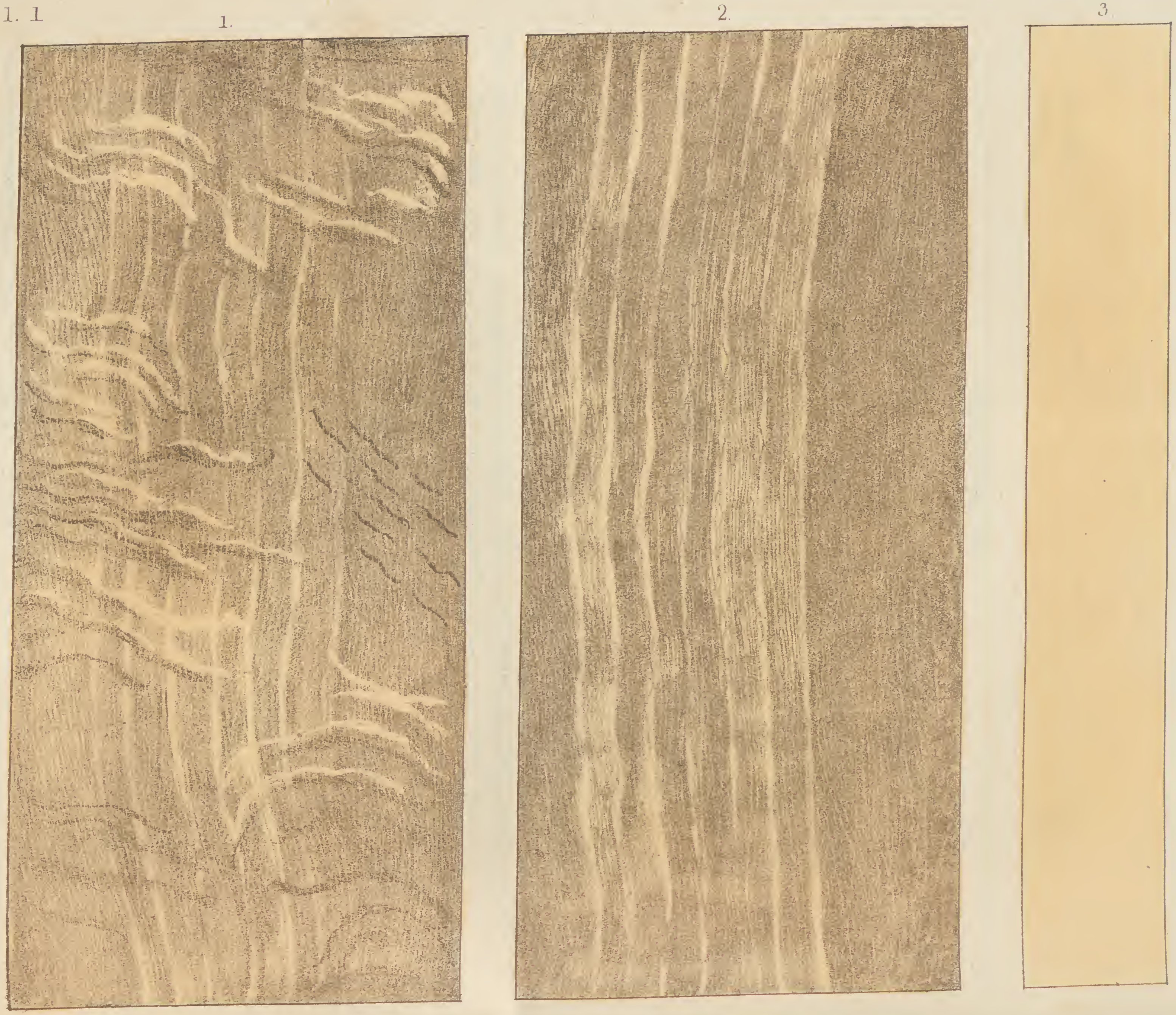
The very great improvement that has been made within the last ten years in the art of imitating the grain and colour of various fancy woods and marbles, and the facility and consequent cheapness of this formerly expensive work, has brought it into general use; and there are few respectable houses erected, where the talent of the decorative painter is not called into action, in graining doors, shutters, wainscots, &c.

Oak is the wood that is commonly preferred to any other for outside work, as it is not only the most beautiful and varied in its appearance, of any of our English timber, but is likewise the most hard and durable; and therefore generally preferred to any other wood for doors and shutters where strength is required. The decorative painter, therefore, who considers propriety, will generally recommend the imitation of oak for street doors, shutters, &c.; and as the grain of wood possesses such a boundless variety, he will have the greatest opportunity of displaying his skill and judgment, which ought to be founded on an accurate examination and acquaintance with nature.

The house painter who intends becoming an imitator of fancy woods, should never endeavour to imitate the productions of the decorative painter, however beautiful and spirited they may appear, but apply to nature herself as the foundation of his future proficiency; he will then form a style of his own, which will bid defiance to criticism; and in London, or other large towns, where veneers of every kind of wood are to be procured, he will be unpardonable if he is content to run the chance of troubling himself to follow the errors of another, when he may become an original painter by studying nature, and by accurate observation and practice strike out new beauties in the art.

COMBED OAK

Pl. 1



The first thing the painter has to attend to in all fancy woods, is to find out what is the lightest part: thus, in looking at a piece of oak, he will find that the light veins called the flowers, which cross the grain, are of a light buff, like Fig. 1. Plate I. The lightest colour will, in all cases of wood, be the ground colour, and, of course, the colour of the last coat of paint laid on in preparing the work for graining. Oak varies in its colour according to its age and the length of time it has been cut; but it will be the safest plan for the beginner to keep the ground of this wood about this colour, and not let it approach too near either yellow or red, as the tint can never be removed from the ground, but can always be added, if required, by glazing when the work is finished. This work is not intended to teach the rudiments of the art of house-painting, and therefore it will only be necessary to say, that in all cases of either graining or marbling, the ground must be well prepared and perfectly smooth.

Oak can be successfully imitated in a variety of ways, in oil or distemper; but in either case the ground must be prepared of the same colour. In the example, Fig. 1. Plate I. the last coat of the ground is rotten-stone and white, mixed to the tint required. Yellow ochre would be too deep a colour, and give the oak a greenish hue, which it is desirable to avoid. The ground must be quite hard before any of the graining colour is put on it.

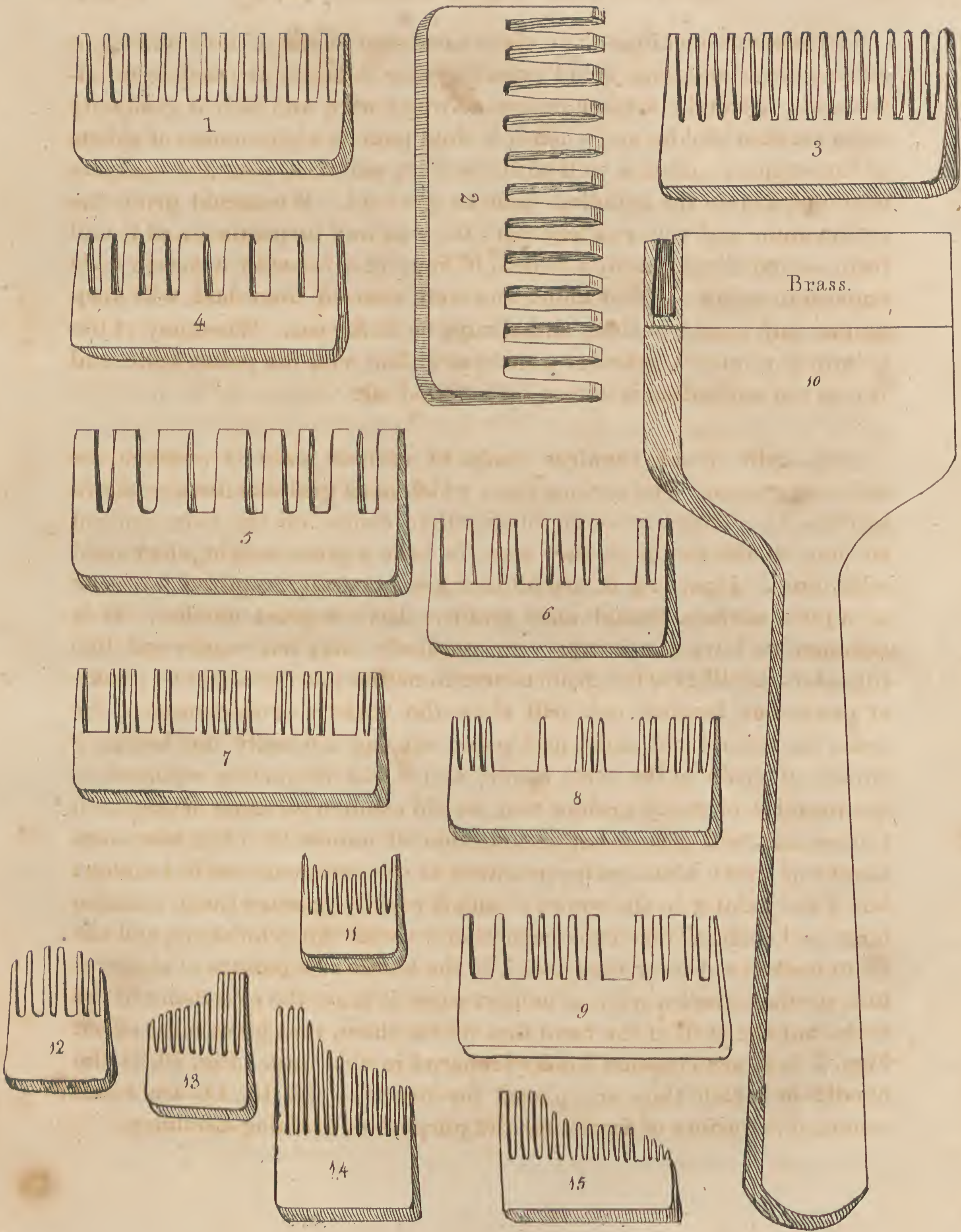
The most approved and durable style of imitating oak is in oil colour, particularly for outside work, as it will resist the weather, and is much easier to manage by an unexperienced hand than distemper colour. The graining colour of Fig. 2. is spread very thinly over the whole surface to be grained. This colour is not a fluid, but a compound of various ingredients mixed together to the consistence of thick treacle: this is called megilp. Megilps are prepared in various ways, according to the fancy of the painter; but the megilp used in these specimens has been proved to be an excellent composition, and contains the same ingredients as most others; the only difference being in the quantities of the articles used in forming it.

To make the megilp—Take eight ounces of sugar of lead and eight ounces of rotten-stone, grind them together as stiffly as possible in linseed oil; then take sixteen ounces of white wax, and melt it gradually in an earthen pipkin, and when it is fluid pour in eight ounces of spirits of turpentine; mix this well with the wax, and then pour the contents of the pipkin on the grinding stone to get cold. When cold grind the rotten-stone and sugar of lead with the wax and turpentine, and it will form an excellent megilp; which, if kept in a jar with a mouth wide enough to admit a pallet knife, and well secured from dust, will keep almost any length of time, and always be fit for use. When any of the megilp is required, take out a little at a time with the pallet knife, and if it is too stiff soften it with a little boiled oil.

This style of oak requires combs of various sizes to produce the different grains. The various sizes which most grainers use are shewn in Plate II. They are made thicker than combs for the hair, and not so long in the tooth, as they have to bear a great weight when used with force. Figs. 1. 2. 3. are all that are generally required for work on a plain surface, though most grainers have a great number. It is common to have the combs very regularly cut; but combs cut like Figs. 4. 5. 6. will give the grain nearer to nature; as the slightest glance at newly-cut English oak will shew the variety of thickness of the grain in its natural state, and point out the necessity for having a variety of grain in the same comb; and it has frequently occurred in the practice of every grainer that an old comb, with some of the teeth broken out, will give a better imitation of nature than the new ones. Combs of every kind can be procured at the comb-makers in London; but if the painter in the country cannot readily procure them, common large and small tooth combs ground down with the grindstone, and the teeth broken out irregularly, will, in the hands of a painter of observation, produce good work; as in most cases it is not the excellence of the tools, but the skill of the hand that wields them, that gives most effect. Figs. 7. 8. 9. are common combs prepared in this way. Fig. 10. is the handle in which they are placed for use; 11. 12. 13. 14. are small combs, of a variety of forms, for the purpose of graining moulding.

Plate II.

COMBS.


1
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Brass.
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A few minutes after the megilp has been spread over the surface to be grained, take comb, Fig. 1. Plate II. and holding the handle firmly with one hand and guiding it with the other, draw it over the work, making the grain slant or look wavey, according to the sort of oak required. This large comb will take but little of the megilp off the work ; it has the effect of spreading it under the teeth, and making it come in thicker streaks or lines in the space between them. When the whole of the work, upon which the megilp has been spread, is gone over with the large comb, take Fig. 2. and draw over the whole, letting the arm in parts bear lighter than in others, and sometimes giving the hand a very tremulous motion : with this comb the large lines will all be broken, and with Fig. 3. the finest comb, the finest grain, or that nearest the centre of the tree, must be produced : this effect is shewn in Fig. 3. Plate I. Having used the combs, take a piece of wash leather, and doubling it to a point, with a sharp touch take out the light parts of the oak, as seen in Fig. 3. ; and if the lines are wanted fine, put the leather on the point of a stick. Most grainers leave the work here, and in consequence combed oak has more the appearance of art than nature ; but if the painter refers to nature, he will find that the lines forming the grain are not smooth lines, but have a roughness or feathery appearance on each side of them ; and though this is not so perceptible without a glass, yet it is sufficiently so to make the combed lines, however well formed, appear stiff and hard. This can easily be remedied by taking a hard tool, dabbing the end of the brush all over the work just combed ; this will spread and break the lines, and give a just resemblance to nature. Care should be taken not to spread the megilp over more than a yard square at a time, as it dries very fast, and is then unmanageable.

When the whole of the work is combed, and the lights taken out, it should be allowed to get quite hard. The dark touches are then put in with a little vandyke brown ground up in ale ; and if a variety of tint of oak is required, a very thin glaze of umber ground in ale may be applied with a flat varnish brush. It may be asked by some who do not dress their work in this way, why distemper colour should be applied to megilp ? but it requires very little penetration to see that the distemper colour dries perfectly hard in a few minutes after it is laid on; whereas, if the glaze and dressing was done in oil, it would require many hours to dry before it would be fit to varnish, an inconvenience that other persons beside the workman would justly complain of. Nothing has been said about the use of the small combs, as Plate I. is supposed to be on a plain surface.

Plate III. is old wainscot oak. The only difference between this and Plate I. is the glazing colour of burnt umber over the whole, after the megilp and combing is dry: the ground colour is the same as before.

After these plain directions, any house painter will be able to use the comb with effect; and it will be advisable for the beginner to practise this kind of graining in preference to any other, as the megilp keeps wet longer than distemper, and if an error is made it is easily amended.

It is of great consequence in imitating oak that the joiner's work should be represented naturally as well as the wood. The practitioner in graining who resides in any large town, will have ample opportunities of observing the work of others, and improving from their beauties, and even from their defects. If a new oak door is to be formed, the joiner is solicitous to select wood as finely flowered and free from knots as it can be procured; and if a join is made in a panel he is anxious that the wood should be of the same colour, and if possible that the grain and flower should match, as nothing would look worse in his eye than knotty wood and difference of colour. And yet it is the constant practice of the painter, in order to shew his skill in graining, to make both those faults show as glaringly as possible. Nothing can be more offensive to the eye of taste than to see the panels of a door joined at all; but if the painter chooses to shew his skill, let the joint appear neatly put together, and shew the joint by combing the grain in opposite directions. The common error is to form the joint by glazing part of the panel with a glaze of vandyke brown, leaving the other part the natural colour of newly cut oak. This certainly shews a joint, but shews it much in the same way that a tailor would

Plate III.*

OLD OAK.

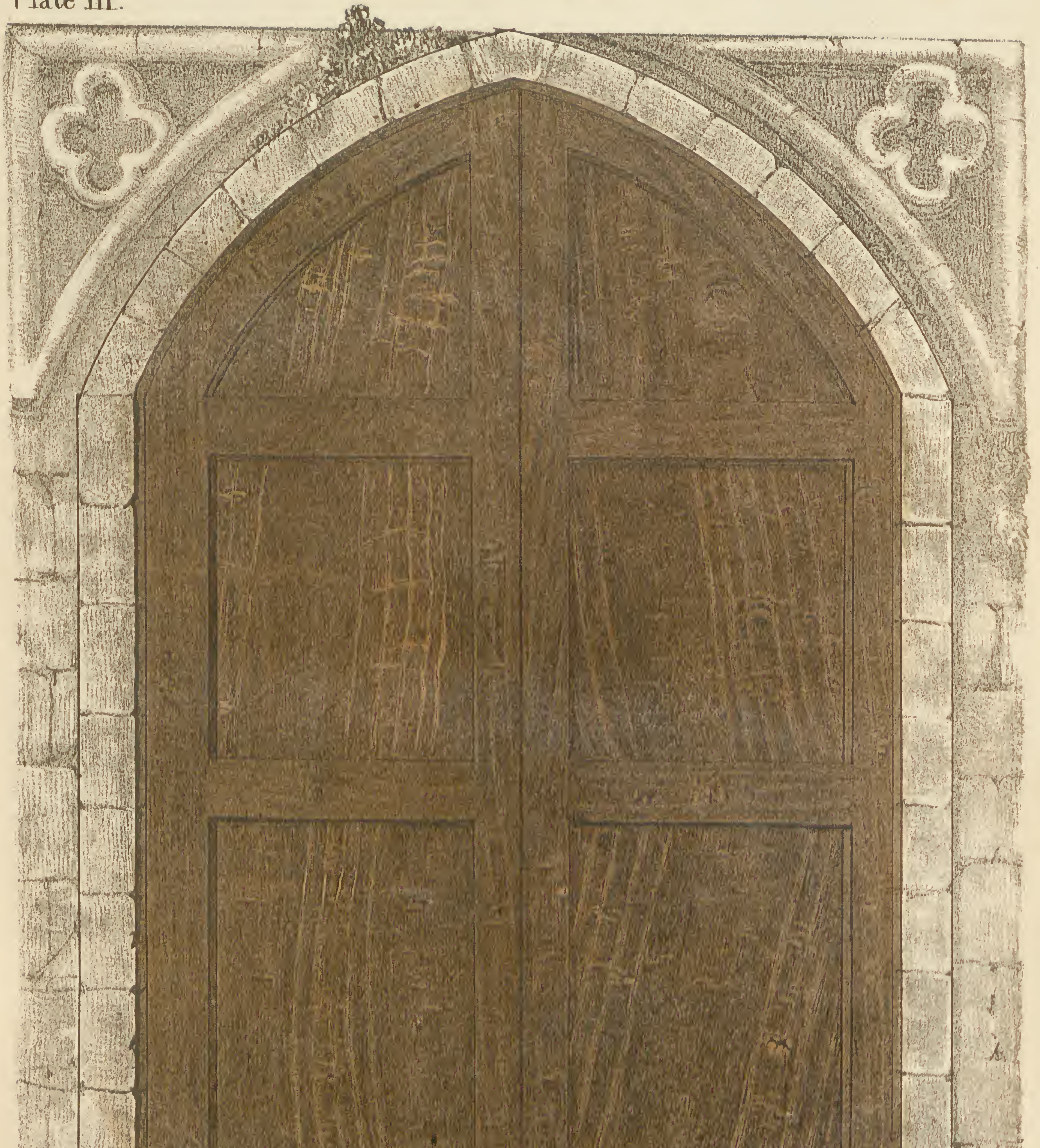
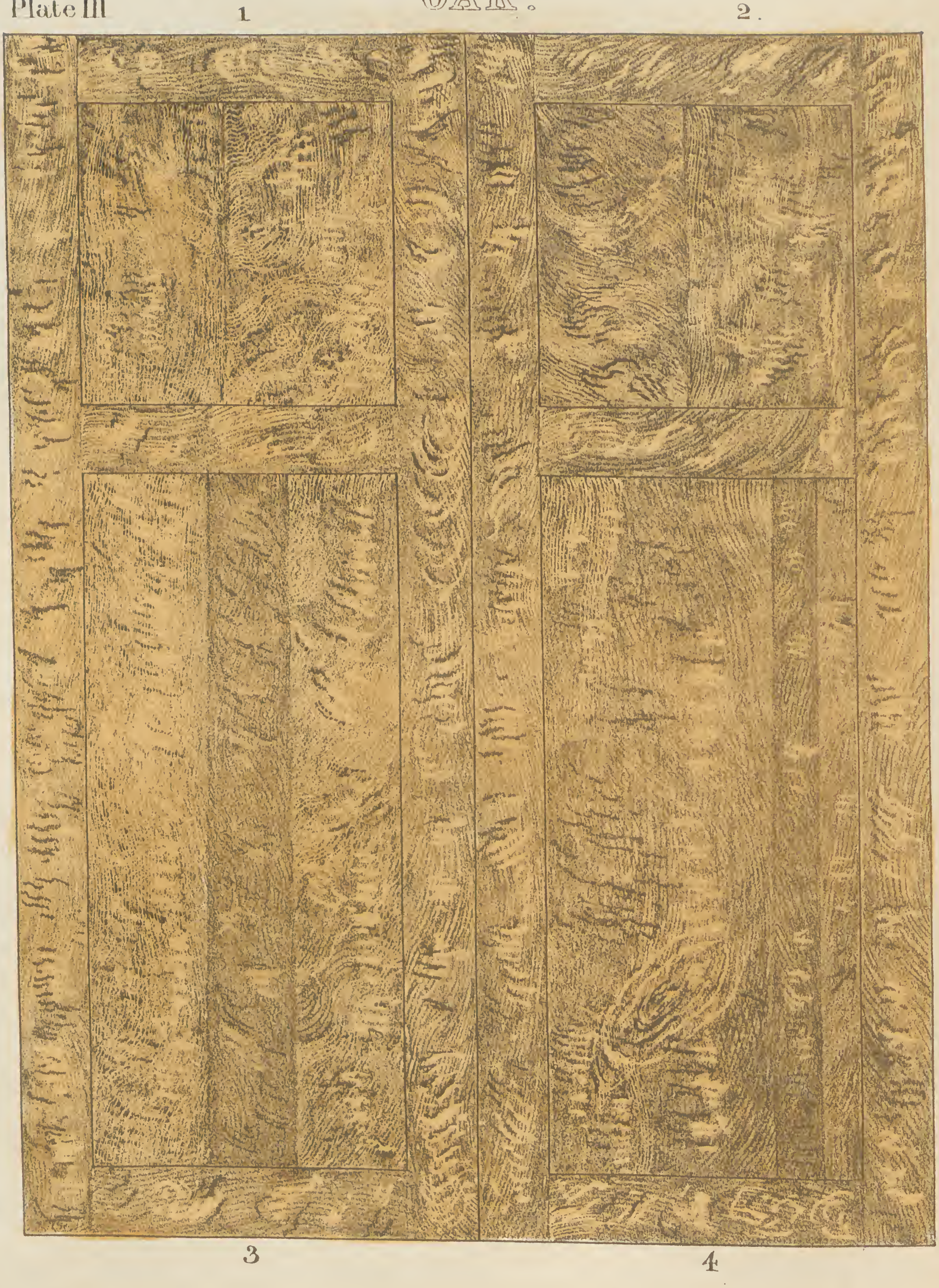


Plate III

OAK.



shew his skill in patching a hole in a black coat with a piece of scarlet cloth. More has been said on this subject than a thing so obvious to every beholder would seem to merit; but as some very skilful grainers think this defect a great beauty, the beginner, without reflecting upon it, might be led into the same error.

Fig. 1. Plate III. is a common door with a joint in every pannel. In order to produce this effect, spread the megilp over one pannel at a time, and grain that completely before proceeding to another: take first the large comb, and beginning at the top, take it down with a tremulous motion to about the centre of the panel; then follow with the two other smaller combs, and wipe out the light parts with the leather, letting the whole of the work incline to the centre, as seen in the right hand side of the upper panel. As the combs have all tended to take the megilp from the side of the panel grained, there will of course be an accumulation on the side that remains to be done. Where you intend the joint should appear, lay a straight edge, taking care that it is kept from touching the work by placing guards, formed of paper doubled together flat, under it at each end; (paper is better than pieces of wood, as they may injure the surface of the ground;) then holding down the straight edge firmly with one hand, draw the comb, Fig. 2. Plate II. sharply down the work, keeping the end of the comb against the straight edge: this opposition of the running of the grains will form an excellent joint, and the workman will take care to let the flower and the dark parts of the oak, which is formed with burnt umber, cross them in the direction as seen in the example. The panel, Fig. 2. Plate III. is joined in the same manner.

The lower panels are examples of the bad effect of different colours. In Fig. 3. a piece of dark oak appears to be introduced into the centre of the panel: the joint may be made with the greatest care, but nothing can take away the patchwork appearance; and even if a painter, in order to defend the practice, shews the beginner an oak door where the panels are formed in this manner, it would be no ground for his following the example, as the painter is not to imitate the worst but the best features of nature. The join in Fig. 3. is formed nearly as in Fig. 1. The large comb is first used on both sides of the panel, letting the grain meet in the centre; the small combs follow in the same direction, taking care to vary the line by a tremulous motion of the hand; let the lights be taken out with the leather, then placing the straight edge as before, draw the large comb down the centre, and afterwards the small comb, as the piece may require it, and the joint will be formed: when this is dry, take a thin glaze of vandyke brown and with the flat brush darken the joint to the colour you wish it to appear. The panel, Fig. 4. has, in addition to the joint, a large knot: this is formed by taking off a large round spot with the leather before the combs are used, and likewise the light parts above and below the spot where the knot is to appear. In using the combs, take care that the grain runs round the knot, letting the middle size comb come nearest to it; the joint is formed as in the other panels. When the whole is dry, draw the knot with vandyke brown, using a sable pencil, and take care to turn the fingers to give it the curl of the knot; this, if done in distemper colour, will soon dry: and then, with the colour quite opaque, make a touch in the centre of the knot, letting the point of the brush drop on it as if by accident, and from this spot draw two or three lines to the outside of the knot, but very finely. Put in all the dark veins of the panel with burnt umber, and with the same colour glaze over the joint. The practitioner will see from the above example, that it takes a great deal more trouble to grain a door in the improper than the proper way.

No written directions could point out every variety of nature; but the workman once having obtained the method of using the combs, and taking care to have several pieces of the wood he wishes to imitate before him while he is painting, as a guide, should he find himself at a loss, there is no doubt but a little practice will enable him to imitate oak with satisfaction to himself and his employer.

After the combs have been used care must be taken that they are washed in turpentine, and well brushed in soap and water, so that they may be put away quite clean. The grainer will see the necessity of doing this frequently if he has got a large surface to cover, as the megilp dries very fast, and if once it becomes hard between the teeth of combs, they are spoiled. Some grainers keep their combs, when out of use, in a cloth that has been rubbed over with soft soap, thinking that the moisture will prevent the teeth from warping; it may have this effect, but as they will be kept constantly moist, they will in a short time become too flexible for use. The best way to preserve them is to keep them very clean and dry, wrapping them in a piece of wash leather.

OAK IN DISTEMPER.

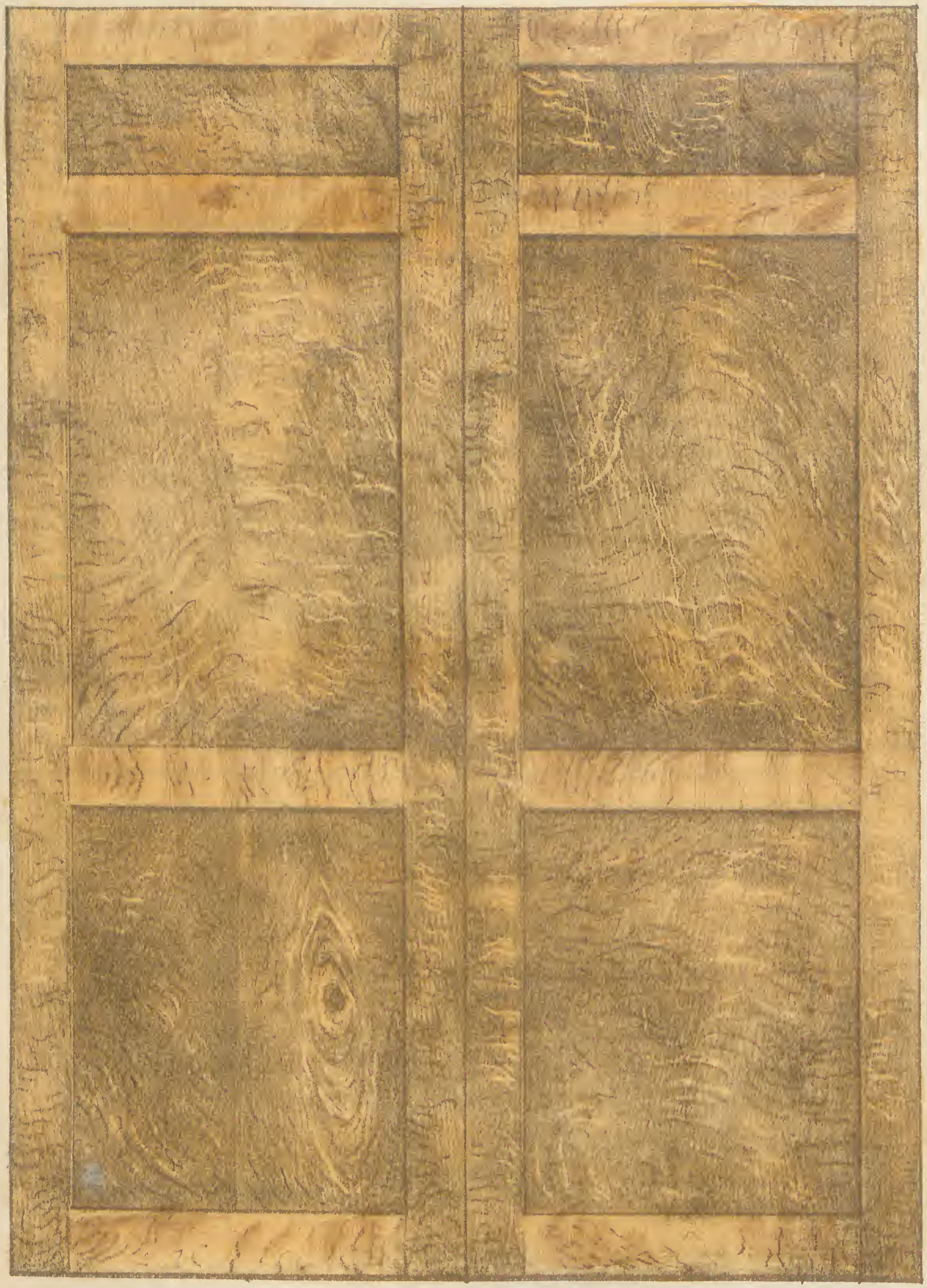
The colours required for painting oak in distemper are burnt and raw umber, and vandyke brown; these colours can be got in any quantity: they should be pounded and afterwards ground very fine in water; the colours should then be suffered to dry upon the slab, and when dry scraped off with the palette knife, and placed in bottles for use. They will in this state be a very fine powder; and when required for use, may be ground up in beer, which is sufficiently glutinous to act as a vehicle for spreading and binding the colour on the surface on which it is to be used. If but a small quantity is required, the colours may be ground in beer at once, without first grinding them in water; but if the work is required to be very neatly executed, it will be better to reduce the pigments to powder by grinding them in water, as it cleanses them from all grit and other impurities, and the colour will mix with greater facility afterwards with beer or any other vehicle that is used.

In graining oak in distemper, the ground must be prepared exactly as before, unless the oak should be required of a deeper colour; then a little umber must be added to the ground, as there is not the same facility in glazing the work after it is dry, as there is in oil. Before any of the distemper colour is laid on the surface to be grained, it will be necessary to wash it with soap and water to take away any grease or dirt; for if there is but a finger mark upon it the distemper colour will not lay smooth.

When the work is well cleaned, and in most cases allowed to get dry, take a little of the umber, ground in beer, to about the consistence of thick paste, on the palette. When the colour is on the palette, it may be thinned to the consistence required, by dipping a brush in beer and letting the liquid drop from it on the colour: having ascertained the strength of colour intended for use, by trying it on any other part of the work, except that which is about to be grained immediately, take a large tool and well filling it with colour, but not too wet, draw it over the panel you intend to grain first, not in a straight line, but in a slanting and in some cases a wavy direction, letting the hand press heavily on the brush so that the hairs may spread; as the tool in this case performs what the comb effects in oil, giving the appearance of various grains according to the handling of the brush. As soon as the colour is by this means spread over the panel, take a large dusting brush, and lightly beat the work with the points of the hairs the reverse way from that in which the colour is laid on, or as it is commonly called against the grain; this must be done very quickly with a light hand, and at the same time using proper judgment to vary the beating by turning the hand according to the various direction that the veins have taken when laid on first. When the panel is all blended together, the colour will have nearly become set, or what the gilders call tachy. At this time take a piece of damp wash leather folded to an edge, and take out the large masses of light; have ready another piece to put on the end of a stick cut to a point, to take out the finer lines; if the colour is drying too fast for you to take out the lights pleasantly, dab the end of the wet duster against the work to keep it moist; but the great beauty of this work consists in its being done with quickness and spirit. As soon as the panel is dry, put in the dark veins that cross the grain with a little of the burnt umber, which of course must not be diluted with beer so much as the graining colour; and if it is required to be darker in parts, add a little of the vandyke brown; these veins must be formed with a camel hair or sable pencil.

As soon as one panel is finished, take a damp cloth and carefully wipe off all the colour that has gone beyond it; and with the same cloth

OAK IN DISTEMPER.



or a piece of damp wash leather, wipe over the next panel intended to be grained, as it will take the colour more freely for being a little damp—not wet, as that would float the colour: then go over this panel with the colour, taking care to vary the form of the grain, but always making it run in a downward direction. If it is thought adviseable to form a knot, let it be a small one, and it will look more natural if placed at the side, and not in the centre of the panel. By referring to the lower panel in the door given in Plate III. a knot is there seen, which in painting must be formed by taking out the round part with the wash leather spread on the top of the finger; which placed on the work strongly, and turned round without taking it from the spot, will take off the colour sufficiently, and leave a round space, the edges of which will appear softened into rings, giving the natural appearance of a knot. The light marks above and below it must be taken out with the damp wash leather, and the edges softened and blended into the general colour with a softener formed with badger hair, as the duster with which the grain is beat would be too heavy for this part of the work. A join will likewise be observed in the centre of this panel. This is formed by beating the grain diagonally or cross ways on one side of the panel, and then laying the straight edge over the work, draw the duster down the panel, pressing sufficiently upon it to make it cut the work. This will not only form the joint by the difference of the grain, but will likewise make a difference in the colour, as a great deal will be taken off by the duster. The remaining part of the panel must then be beaten against the grain as before directed, the lights taken out, and when dry the dark parts added.

As soon as the lower panel is finished, wipe off all the colour that has gone upon the stiles of the door, and begin to grain the stiles above the panels, taking care to let the grain run horizontally or directly across the door, varying it a little according to fancy. The brush should not be so wet that the colour will spread into the panels already finished, nor will it require to be so wet as when used on the panels, as the space is much smaller and will take a shorter time to beat and mark. Proceed with the centre and lower stiles in the same way, only varying the grain according to fancy, regulated by an intimate acquaintance with nature. When these are finished take the damp cloth wrapped round the finger, and laying the straight edge over the work, draw the finger sharply across the ends of the short stiles, taking the colour off clean. This must be done at both ends of the stiles, and the upright stiles will be ready for graining. It will be necessary to lay the straight edge over the work finished, and to let the tool, with but little of the graining colour, cut a line from the top to the bottom of the door. This will give the effect of a neat join both at the ends of the stiles and the panels. After this line is drawn, the hand may be allowed more freedom in going over the rest of the work, and in beating it with the duster care must be used that it does not go too near the line to break the joint in the slightest degree. The same means must be used on the other side, and the door is so far completed.

This portion of the work is not written for the use of those who understand the art of graining, but for those who do not, and are desirous of attaining it. To them no apology will be necessary for the repetition of nearly the same directions in different specimens, as it is better to state the same thing twice than run the risk of not being thoroughly understood. The practitioner will, therefore, bear in mind, that in graining in this style it is necessary,

1st. To have the work well cleansed from grease, &c. with soap and water.

2nd. To have the colours, brushes, wash leather, cloth, straight edge, and every thing else that he requires, all ready before he begins to grain, as the colour he is working with soon dries and will not bear re-touching.

3rd. To have the appearance of the work he intends to produce in his mind before he commences; or if he is going to imitate nature or the work of another painter, he should be prepared with a sligh sketch, so that he may not have to divide his thoughts by thinking o what he is going to do, and how he is to perform it, at the same time as the nature of the colour he is going to work with will not give time for deliberation, nor if suffered to get dry can it be altered without looking patchy.

4th. Never to grain too much at one time, as it will get dry and cannot be worked with effect; and here it may be proper to observe, that if the appearance of the work is not what the grainer wishes it to be, it will always be better to wash off the whole of the panel and grain it afresh, rather than try to alter or amend it, as it can seldom be effected even by persons who have had great practice.

5th. In penciling the dark veins, knots, &c. be careful that the colour is not too wet; for, if the work is damp, the colour will spread, or if quite dry, it will perhaps remove the graining colour; and in drawing the dark or light veins never let them be hard stiff lines, but always curved and wavy.

When the whole of the work is quite dry it may be varnished, and it is then completed. The varnish proper for different kinds of work will be stated under the head of Varnishing.

Some grainers, feeling the inconvenience of the distemper colour drying so quickly, use a sort of megilp by mixing a little soap, wax, and turpentine with the colour, ground in beer: this certainly makes it retain its moisture longer than when beer is the only vehicle employed; but the soap and wax clog the duster in beating, and the grain loses the feathery effect which is the great beauty of this style of graining. Some grainers, before they proceed to lay on the graining colour, beat up some soap to a lather, and brush it over the work quite thick. The soap in that state mixes with the colour as it is laid on, and prevents it drying so quickly, and renders it soft and pleasant to work; this is a practice that can be recommended to beginners if they find any difficulty in using the distemper colour, but in most cases the most simple and easy way of producing the proper effect is the best; and the learner will find but little difficulty, after having made a few attempts, to practise this style of graining, and will have no occasion to use any thing but the colour, finely ground and mixed with beer.

The old style of imitating oak in distemper was merely spreading on the colour without attempting to produce any kind of grain, and after it was nearly or quite dry a flat varnish brush was dipped into a little spirits of salt, diluted with water to the strength required, the hairs being very thin and separated. This brush was drawn over the work in a variety of forms, and immediately afterwards the wet streaks that it made were brushed across with the duster: of course the spirits of salt loosened the colour, and gave the effect of grain when it was taken away upon the duster. But it was impossible to imitate the fine grain of oak by this method, if executed with the greatest dexterity; and it requires a much longer time to perform the work, than by the improved methods.

The old method of painting oak in oil and that which is still practised by country painters and others who have never heard of distemper colour, was to paint the work over with colour ground in linseed oil and dryers, and afterwards giving it as much the appearance of grain as they could by working the colour with a large dry tool, and taking out the light veins, with the end of a stick, cut thin for that purpose, or with a small piece of cork. This method, of course, is not held in any estimation at present, and is only mentioned to shew the variety of means that have been made use of to imitate the grain of oak, and to contrast them with the more approved methods of producing a faithful, spirited, and easy imitation of this beautiful wood.

POLLARD OAK.

The lower end of the trunk of the oak tree, near and under the surface of the earth, if cut directly across, exhibits the most beautiful variety of forms in the grain of the wood, and is now become very fashionable for furniture, paneling, &c. Oak cut in this way can be very successfully and easily imitated in distemper colour: the ground must be the same colour as directed in the preceding subject.

In order to understand the working of pollard oak, it will be necessary to refer to Plate V. The small space marked Fig. 1. shews the

POLLARD OAK.

Plate V.

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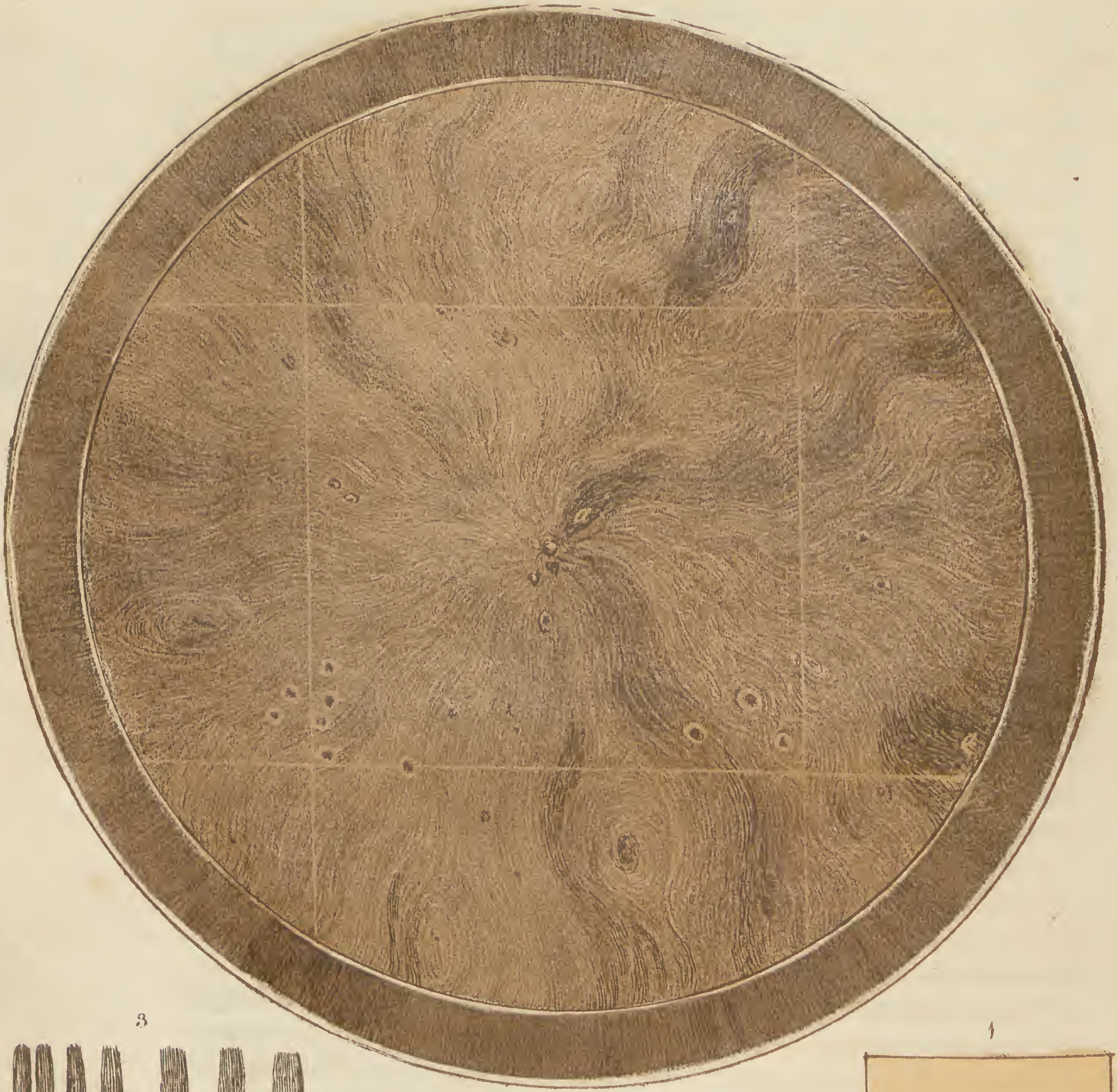

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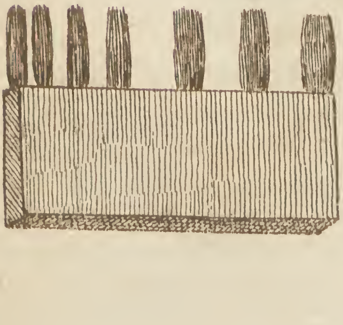


1

colour of the ground. The painting of the circle is commenced from the centre, on which the tool, well filled with umber ground in beer, must be dabbed with freedom five or six times, till the colour is almost floating in every direction; then taking a flat varnish brush spread the colour thinly from the mass in the centre in rays in every direction, taking care that the rays are not straight, like rays from the sun, but irregularly curled and wavy.

When the colour is drawn by the flat brush over the whole of the surface, after it is quite dry, the process must commence again from the centre, by making some long touches as if by accident, with a large pencil filled with vandyke brown. This must be softened and blended over, the colour first laid on with a badger-hair softener, taking care to draw the hairs of the softener over the work with a light and quick movement of the hand, so that the colour first laid on is not moved. This dark tint is laid on in several parts of the work, as well as at the centre, as will be seen by referring to *a*, *a*, *a*, in the plate, and softened to correspond with the direction given to the first grain. The work must now be again suffered to dry, and the last vein is given with a flat brush, containing very few hairs, and some of them cut quite away, to allow a space between them in unequal distances. The figure of this brush is given in Fig. 3. Plate V. Mix a little burnt umber very thin in a saucer, and dipping this brush in it draw it lightly over the work in various ways, crossing the grain as seen at *b*, *b*. When this is dry, the piece only requires varnishing to be completed.

A circle has been executed in this plate to shew the sap running in various directions from the centre of the tree, particularly if the wood is used in this shape for library and drawing-room tables; and the furniture painter will frequently be required to imitate pollard oak on common deal tables. But this style of painting is likewise used in wainscot and paneling: in this case it is obvious the circle must be cut into squares and the centre divided. This has been done in the plate under consideration, and the learner will observe that the dark parts of the grain proceed from one corner, or at least one side, and the grain is made to run as if it was part of a circle. It is almost impossible, in the small space to which an engraved representation must necessarily be confined, to give the proper size of the various grains to the whole circle. Plate VI. is therefore added, which is an exact representation of a piece of pollard oak of the same size as the print. No two pieces of this wood were ever seen alike; the painter, therefore, who adheres to the colour and form of the grain, need not confine himself to any particular pattern, but turn and blend the grain in any way, according to fancy, without fear of being accused of deviating from nature.

This wood is very durable, and therefore a fit colour for hall chairs, tables, &c. and if the colour is worn off it is easily repaired by applying some spirited touches of vandyke brown on the parts that are broken, and varnishing the whole of the piece of furniture. This will make the article look as if it was fresh painted, with scarcely five minutes trouble.

MAHOGANY.

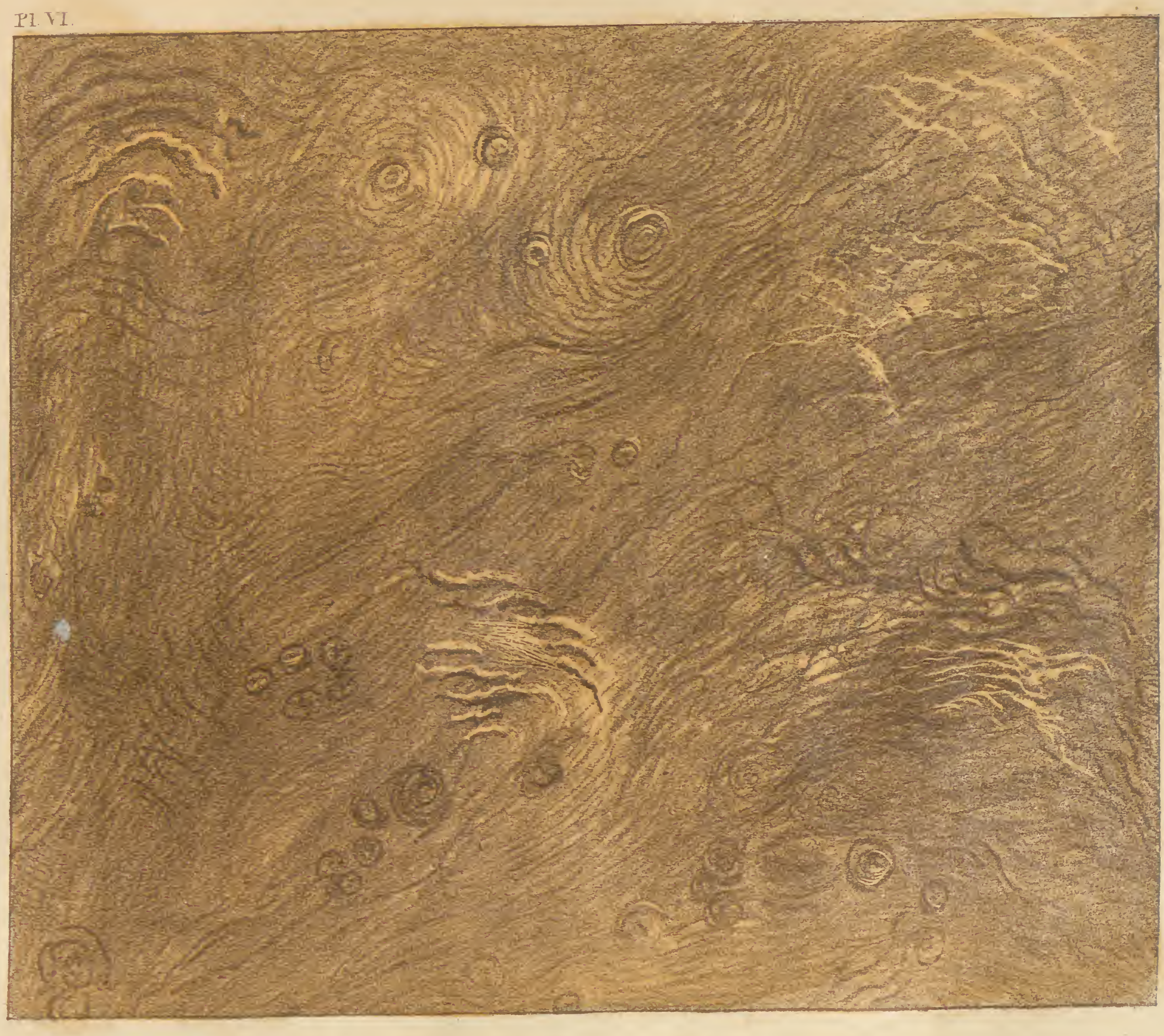
From the variety of uses to which this valuable wood is applied, and its being constantly before the eyes of almost every person, the grainer will find it necessary to be particularly careful in its imitation in every variety.

Plate VII. is the common Honduras Mahogany, which is given first, as it is the easiest to imitate. Fig. 1. shews the proper colour of the ground, which is prepared with venetian red and white lead, mixed according to the depth of colour required. This ground colour must be very smooth and well prepared, so that no appearance of the tool used in the oil colour is perceptible on the surface. When this is quite hard, take the damp wash leather, and proceed as directed in the satin wood, p. 38.

The only colour required in this specimen of mahogany is different tints of vandyke brown. The first tint, Fig. 2. is spread evenly over the surface intended to be painted at once: while quite wet, take a

POLLARD OAK

Pl. VI.



SPANISH MAHOGANY.

Plate VIII.

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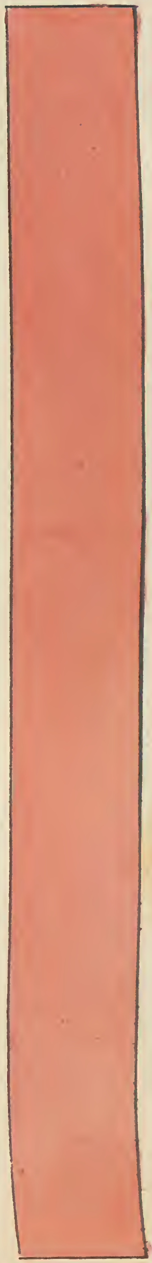

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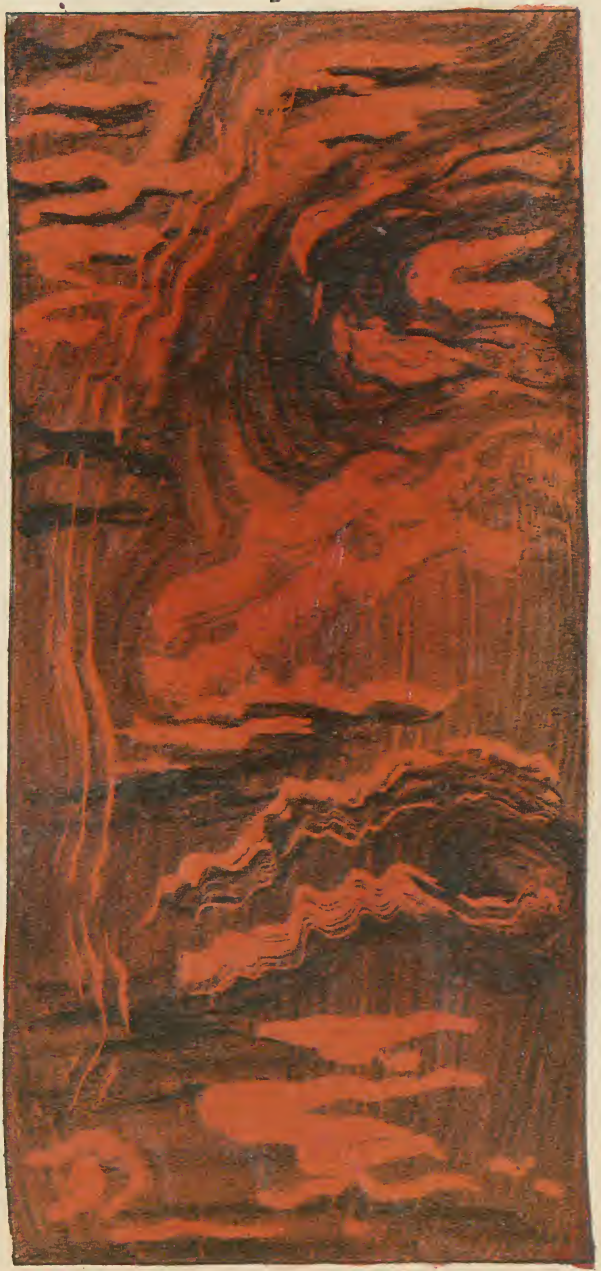

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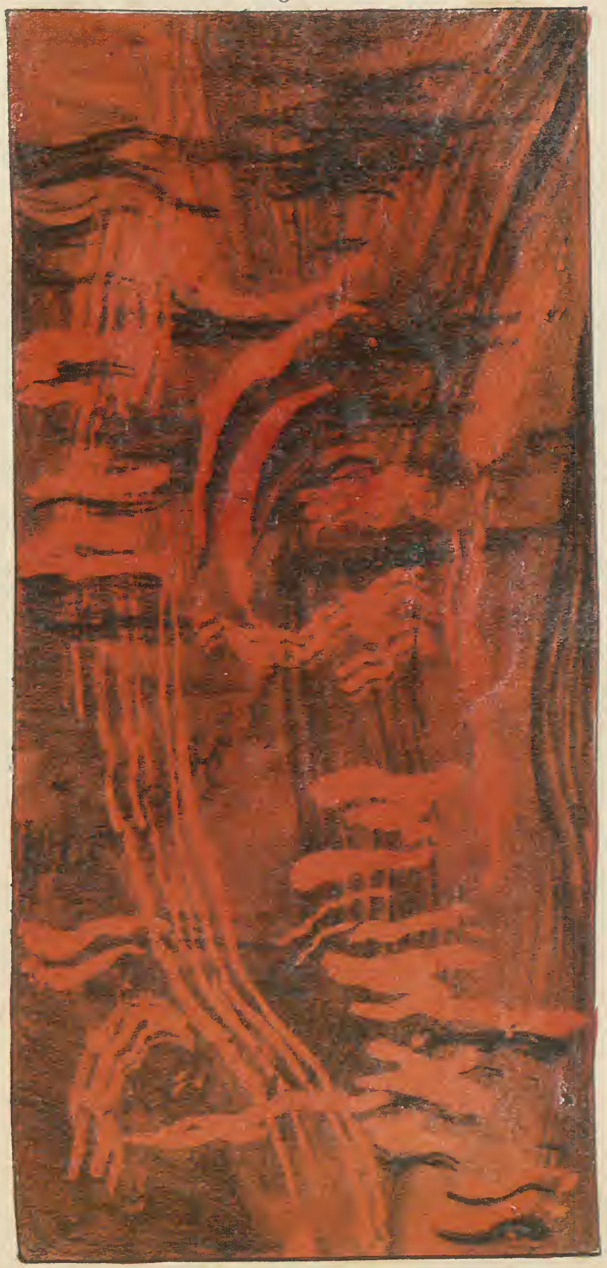


piece of sponge, and with great freedom dab it on the work in various places; it will take out the lights as seen in Fig. 2. As soon as this is done, take the softener and blend the edges of the light parts, and the wet colour together, taking care to let the softener be used in the direction in which the dark veins of the mahogany are intended to run. As soon as this is dry, take a deeper tint of vandyke brown, and with the tool form the lightest of the dark veins seen in Fig. 3. These will run in the direction of the light, both above and below it. Some of the touches will be darker than others, and just under the light a dab of colour must be laid on nearly opaque. These different veins of colour must all be blended together, and softened with the dusting brush, which must be handled in the same direction given to the colour. When the mass is by this means worked together, take the badger-hair softener and lightly blend the whole, letting the softener move from right to left.

The quickness and spirit with which the imitation of mahogany can be produced will afford a pleasing surprise to the learner. A close observation of nature will enable him to produce the most beautiful specimens of this kind of mahogany, with the greatest ease, after three or four trials. This is the proper mahogany for street doors, shutters, &c.

SPANISH MAHOGANY.

This species of mahogany differs greatly from the last specimen. The ground is a much richer tint; the mottle is much more varied, and if executed properly, is the highest test of the grainer's art. It is impossible to point out every variety of figure and colour which is displayed in this elegant and valuable wood; the author of this work has therefore closely imitated two specimens.

Fig. 1. Plate VIII. is a correct copy of a piece of Spanish mahogany of the same size; it will be observed in this specimen that the ground colour (that is the lightest tint in the print) is of a much finer red than the common Honduras mahogany; this is produced by adding a little

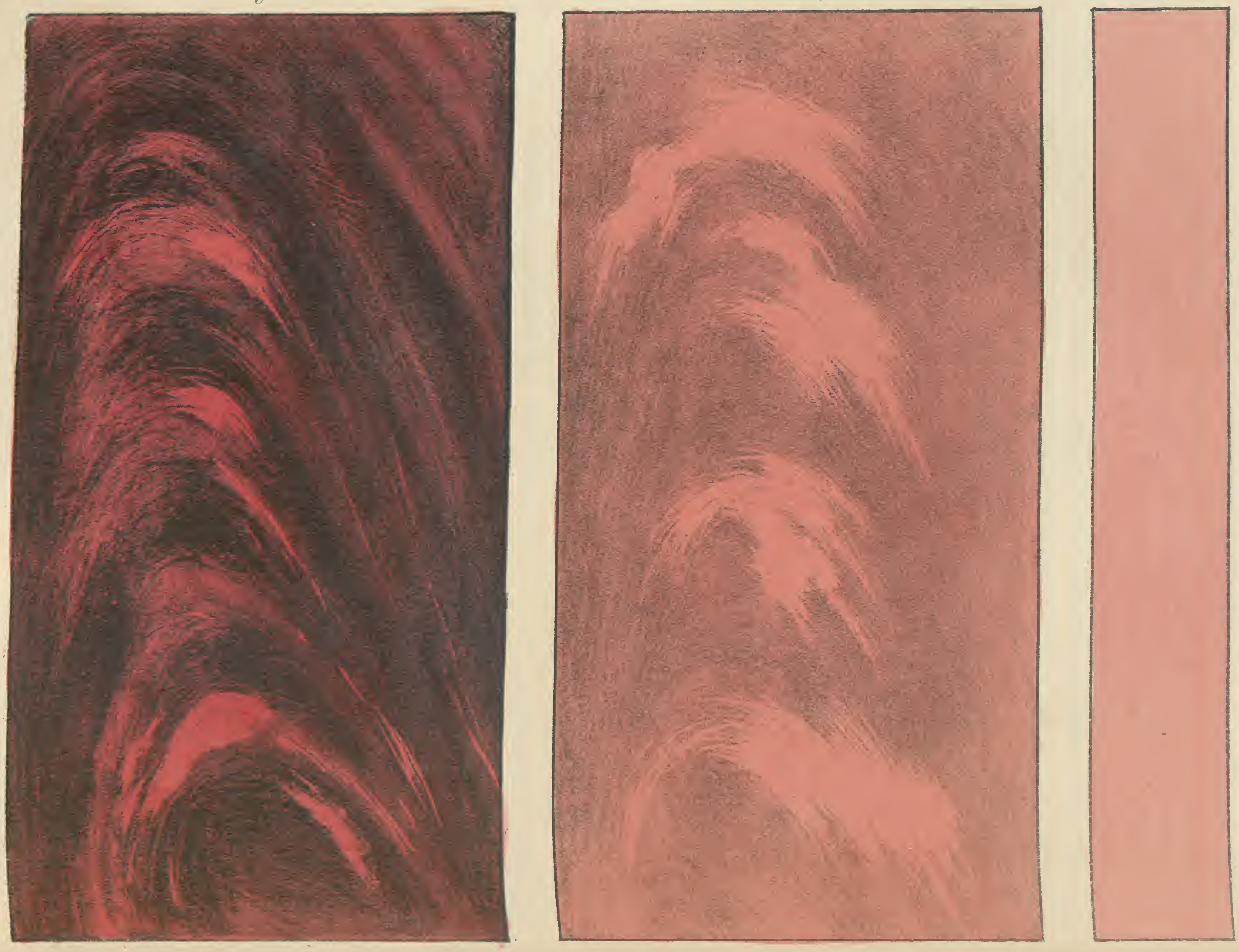
crimson lake to the ground: which, as in the former case, must be quite hard before any distemper colour is applied to it. In Spanish mahogany the dark veins incline to the crimson colour; and this effect will be produced by grinding a little vandyke brown and lake together in ale, and spreading it with the flat brush, with the hairs separated, over the panel or space intended to be covered at once. This will leave the light grain of the mahogany uncovered. In the specimen under consideration the flower runs in a slanting direction across the wood, and in the centre appears as if suddenly separated. This effect is produced by checking the hand at the end of the first sweep taken with the flat brush, and at the same time bearing harder upon it; this will spread the hairs, and give a greater quantity of colour. While the colour just put on is damp, dip the same brush in the vandyke brown and lake mixed up a little thicker on the palette, and following the veins in nearly the same direction, it will produce the darkest veins, which check with the hand as before directed: then having ready a piece of wash leather, either placed on a stick or folded to a point, with a light hand, and with great quickness, take out the lights that appear in small streaks on each side of the vein. Let them come off clean, and then blend the whole together with the softener in every direction, till the colour begins to set: when this is dry and properly varnished, the work is complete.

If this, or any other of the colours in distemper, is applied to doors or shutters, or any other work that requires paneling, the same means must be resorted to as in painting the imitation of oak in distemper.

Fig. 2. is another specimen of Spanish mahogany copied closely from nature. The colours of this piece are too brilliant to be given with accuracy in water colours on paper. The ground is first finely prepared with Indian red, lake, and white lead: when this is dry a thin glaze of rose pink ground in ale, is spread over the whole surface. This must be very evenly laid on, and while wet a thin piece of sponge dropped on it in quick succession and quite accidentally, as directed in the satin wood. There is no necessity for blending this with the softener, as the hard edge left will be of service. When this is quite

Plate VII.

MAHOGANY.



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dry it must be varnished, which must remain till quite hard before any colour is applied to it. This second ground will now present a most beautiful appearance, which will not be altered by the distemper colour about to be applied. This is vandyke brown and lake, which is put on with short thick touches with a small tool: upon this the sponge must be dropped nearly in the same places it was on the first ground: this will produce the second tint of light. The whole may now be freely blended with the softener: when dry, take the flat brush, with the hairs separated, and draw a glaze of thin vandyke brown, crossing the touches on the dark side, as seen in the pattern. When this is dry, varnish the whole, and the imitation of finely watered Spanish mahogany will, if neatly executed, be excellent. It is obvious from the length of time required in producing this imitation, that it can only be applied to the very finest work.

No description could point out the variety of form and colour of the different kinds of mahogany; but the grainer who can produce specimens like the above, will find no difficulty in imitating any pattern that may be placed before him.

For all common work, such as the fronts of shop counters, hand rails, or any work in constant wear, it will answer the purpose, if the ground is prepared in the second coat with Indian red and white lead, to about the tint shewn in Fig. 1. Plate VII.; and when dry grained with Indian red and black, ground in turpentine and boiled oil with dryers; having a separate tool for each colour, form large veins according to fancy, and when the surface is nearly covered, take out the strong light with a piece of wash-leather, and afterwards blend and soften the whole with a large duster. Many yards of work may be grained in this way with good effect in the course of a morning, and the work more durable than by any other method. The common error in this sort of graining, is that of having the ground a dark red, and forming (or rather trying to form, for it never succeeds) the strong lights with opaque colour instead of wiping them out: the consequence is that it is either left an unseemly lump, or it mixes with the red and black, spoiling the whole mass.

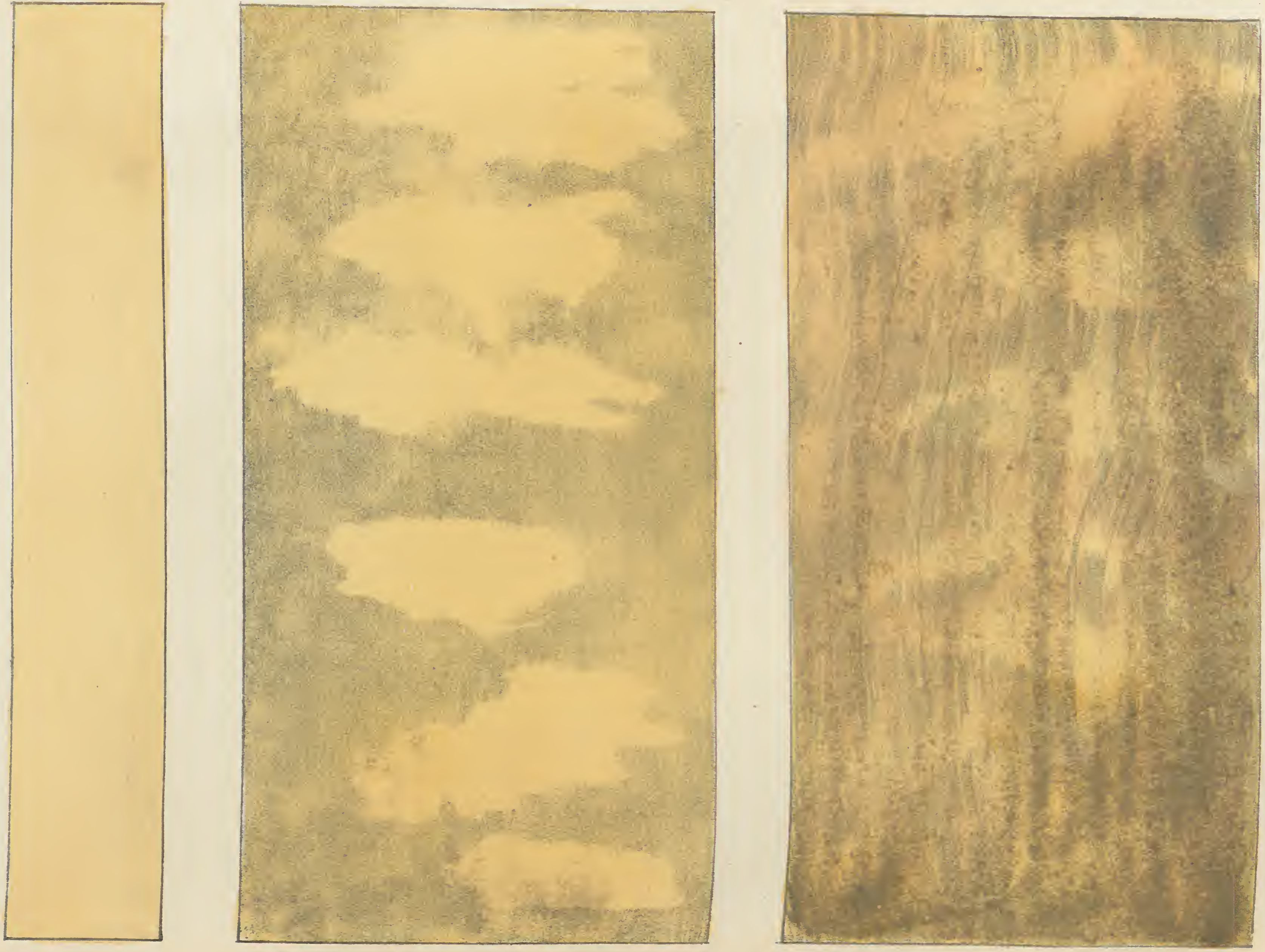
SATIN WOOD.

This beautiful and delicate wood can only with propriety be used for inside work, and its effect should, where it is possible, be heightened by contrasting it with a dark coloured wood.

The ground for satin wood is the same as the lightest oak, and must be prepared perfectly smooth before any colour is laid on. Wipe it all over with a damp wash-leather to take away all dirt and dust, and to see if there are any grease spots on the surface, which will easily be perceived when the damp leather goes over the ground, as the greasy parts will not take the moisture, and will shine and appear dry: in this case the greasy parts must be washed with a little soap and water. Having cleansed the ground, take a little of the best Oxford yellow ochre ground in pale ale, and with the ale dilute it to the consistence required; with this colour paint thinly the whole of the panel or space you intend to grain. As soon as it is well brushed over the surface, take a small piece of sponge, and let it drop accidentally on various parts of the work, and it will, wherever it touches the surface, take off some of the yellow ochre just laid on and still wet. As soon as you have produced as much dapple as the piece requires, soften the edges by passing the badger-hair softener over the whole piece, letting the brush move quickly backward and forward. This will blend the thick edges left by the sponge, and soften it among the yellow, leaving the ground colour perfectly clear to shew the light dapple of the satin wood: this effect is shewn in Fig. 2. Plate IX. When the yellow is quite dry take the flat brush, with the hairs separated, and dipping it into a very thin glaze of umber and raw sienna ground in ale, pass it over the work lightly, in a wavy direction, and immediately use the softener to blend it together in parts, letting it touch a little harder upon the bright lights than in the other parts, to remove the vein just laid on from it. When this is dry and varnished the work is finished.

SATIN WOOD.

Plate IX.



The learner will find this beautiful wood easier to imitate than any other. The principal thing to be observed is cleanliness and quickness. The sponge used to take off the yellow should be rather long and thin: if the work is flat let the sponge drop down upon the colour in various places, as accident will give more nature and freedom to the form than any effort the learner could make. If the work is upright, a door, or wainscot, for instance, let the sponge touch it as lightly as possible, and merely hold it between the finger and thumb, so that the forms of the light may vary every touch. The grain of this wood in nature is generally straight, so that the last vein that is put on should not get much out of a perpendicular direction; merely a gentle graceful curve waving it in parts, as seen in Fig. 3. Plate IX. When the work is dry and properly varnished, if well executed, it can scarcely be distinguished from nature.

WALNUT TREE.

This wood is so much like mahogany in the grain, that the painter who can imitate one will find but little difficulty in imitating the other. The ground must be prepared with yellow ochre, a little umber, and white. When dry, the veins are drawn over this ground with the flat brush, or if a large surface is to be covered, with a large tool, nearly worn out, filled with raw umber ground in beer. If a knot is to be represented, take the round part out with the sponge, by placing it on the colour while wet, and turning it round with the finger and thumb; the light parts above and below the knot, must likewise be wiped out with the sponge. The work should then dry. Afterwards the darkest veins may be shewn by drawing the flat brush in various directions over the work, taking care that it follows in some measure the grain first laid on; with the same colour mark the dark part of the knot, and the touches above and below it, blending the whole together with the duster; and when varnished the work is complete.

Walnut tree is not much used as a fancy wood, and therefore no engraved representation is given of it.

ROSE WOOD.

There is so great a variety of form in the grain and colour of this most elegant wood, that it is almost impossible to find two specimens alike, and nothing is more common than to hear good imitations of rose wood pronounced unlike nature by persons who are not used to see it in its varied forms. It will, therefore, be necessary for the grainer to procure several pieces of veneer, and imitate them as closely as possible. The learner will by this means form his style upon the variety in nature, and will be more likely to produce pleasing and striking representations: for it is of little use to copy the productions of nature that are scarcely known, and consequently not recognized.

Fig. 1. Plate X. is the ground for all kinds of rose wood; it cannot be made too brilliant. It is prepared with vermillion lake and flake white, mixed together to a beautiful rose red, letting it partake more of the pink than the scarlet. When the ground is quite dry and smooth, take vandyke brown, nearly opaque, and with a small tool spread the colour in various directions over the ground, leaving the larger space for the right; then with another dry tool beat the colour while wet against the grain that is in an opposite direction to the way in which it was laid on. Before the colour is dry, take a piece of wash-leather on the point of a stick, and with great freedom take out the light veins that appear to be part of the veins formed by a knot; immediately have ready the darkest tint of vandyke brown, and with a sable pencil give free and strong touches under the parts taken out with the leather, and in other parts where the ground is thinly covered. Then blend and soften the whole together with the badger-hair softener; and when varnished the imitation will be excellent.

As in other woods, the learner will perceive that he must either have a pattern before him, or the work must be previously formed in his mind, as the colour dries so quickly that there is but little time, if he has a large space to cover, to deliberate upon the form the grain shall take.

ROSEWOOD.

Plate X.

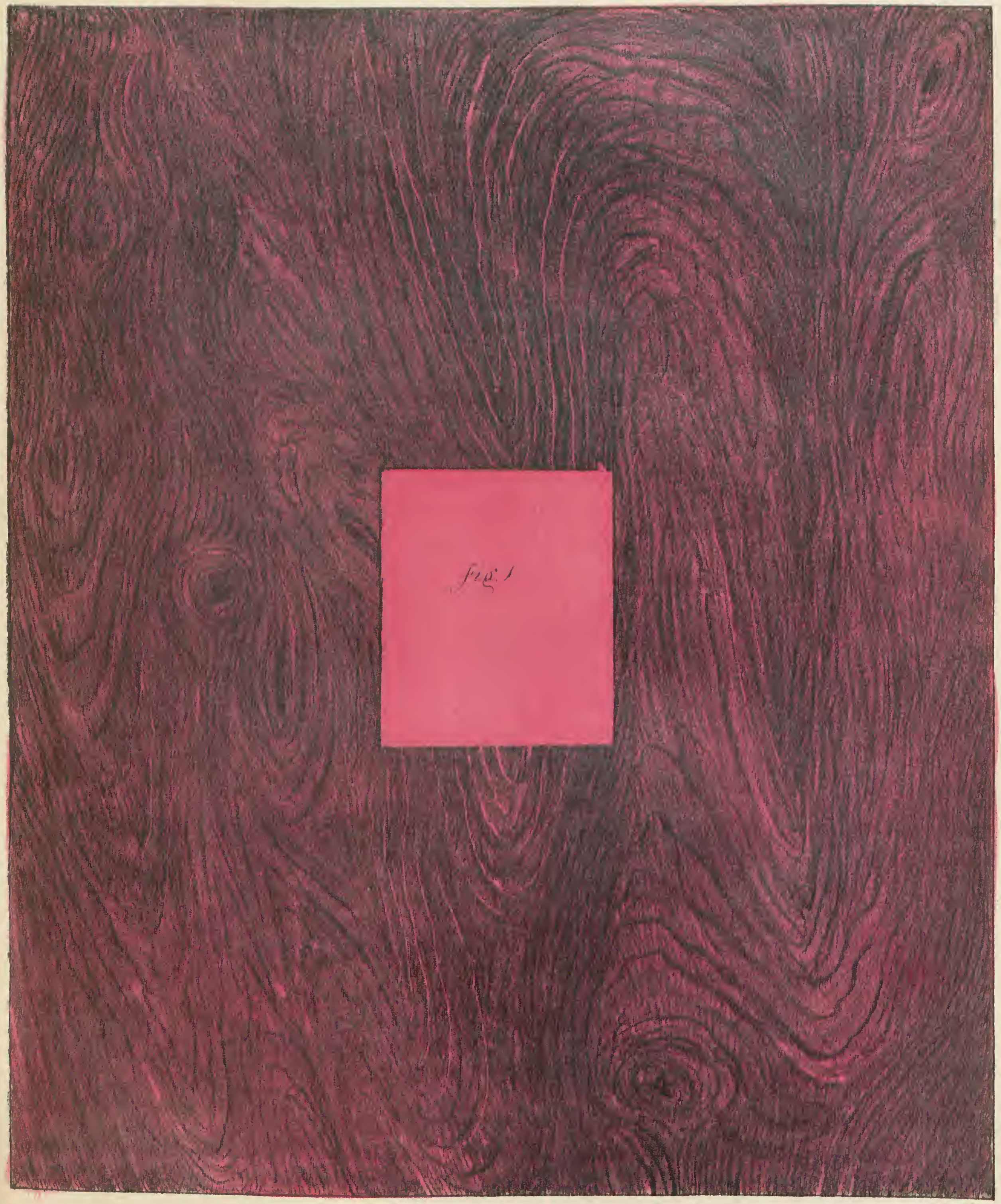


Plate XI.

ROSE WOOD.

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Fig. 2. Plate X. shews the first colour laid on roughly with the tool. Fig. 3. shews the veins taken out with the leather, and the dark touches put in with the sable pencil, and softened together.

Plate XI. contains two specimens of rose wood, of a more brilliant colour, and greater variation of figure than Plate X. The ground for Fig. 1. is white, lake and vermillion, which must be suffered to get quite dry before the graining colour is applied. The grain is formed with vandyke brown and rose pink, ground very finely in beer: this is laid on the ground with a common tool, but not too thick; then taking a common quill draw the feather in various directions over the colour while wet; give the hand a light tremulous motion in the part where the grain appears wavy, then take out the small bright lights with the wash leather, and afterwards soften and blend the whole together with the softener. When this is quite dry, which will be in a few minutes, give the very dark touches under the light parts, with vandyke brown and rose pink nearly opaque. This, when varnished, will form a brilliant coloured specimen, very fit for bookcases, cabinets, or other work that is likely to be much handled, as it will not soil quickly, and though easily produced is a shewy standing colour.

Fig. 2. is a specimen of the light rose wood. The ground is formed as in the preceding plate; the graining colour is vandyke brown and rose pink. This is put on not in a mass, as directed in Fig. 1. but with a flat brush, with the hairs cut away till it has the appearance of a wide-toothed comb: the grain is spread on in streaks in a curled direction as if winding round a knot. If this is suffered to get nearly dry, and the comb Fig. 3. Plate II. applied directly across the grain, it will give it exactly the appearance of nature. A dark vein runs down the centre of this specimen, which is formed with vandyke brown, laid on nearly opaque.

The specimen Fig. 2. Plate XII. is the rose wood that is now so fashionable for shop fronts. It is the coarsest kind, and is therefore very fit for the purpose. In painting this specimen the ground need not be so brilliant as in those that preceded it, but may be formed of

Indian red and white lead, to about the same tint required for mahogany in Plate VII. The veins are formed in long streaks, laid on with a small tool irregularly in lines nearly parallel or even with each other; care must be taken that they are not stiff formal lines, but wavy and varying in thickness. Let these lines be spread with the brush full of colour; and then taking a flat hog's-hair brush, cut very square at the end, and the hairs cut away at unequal distances, lay this brush flat on the thick veins while they are wet, and draw the curled vein from one thick line to the other, forming knots and fissures, as seen in the plate, as you proceed. Should the colour get too dry to follow the brush freely, make no scruple of again filling the thick line that you are working on with colour, as some of the darkest veins in this wood are nearly opaque. After the whole space is grained, take a large camel-hair pencil and paint in the knots; and while the whole is wet, or rather damp, beat it against the grain with the duster; this will produce the rough effect seen in this kind of wood. When this is thoroughly dry, varnish it and the work is complete.

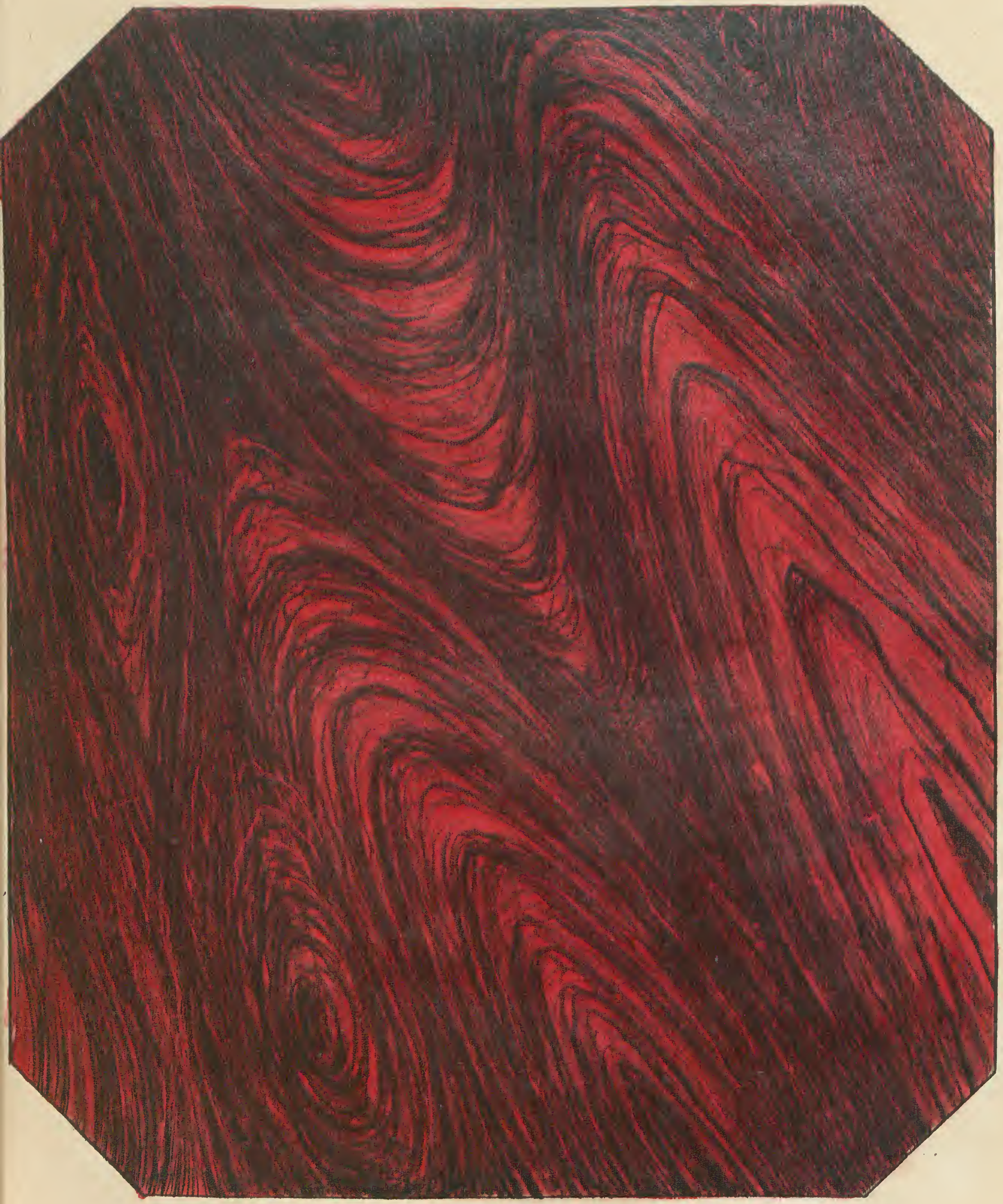
The form of the flat brush required in this work is drawn Fig. 3. Plate V. Fig. 4. is a thick camel-hair brush, without a handle, very useful in taking out light veins that cross the grain either in rose wood or mahogany.

Every experienced grainer forms for himself a variety of tools that are useful in his peculiar style of painting. The author of this work has recently seen a most beautiful specimen of painting in imitation of rose wood, the grain of which was so fine, and varied with such apparent skill, that he was anxious to ascertain the kind of brush made use of to produce it, and was most agreeably surprised on being informed that it was merely the feather of a goose quill: he has tried the effect it will produce in mahogany, rose wood, pollard oak and maple, and can recommend it to the practitioner as a tool that may be used with great effect, and can generally be obtained with ease. It may be necessary to say that a number should be procured, as they soon get wet, and are useless in that state.

Plate XII.

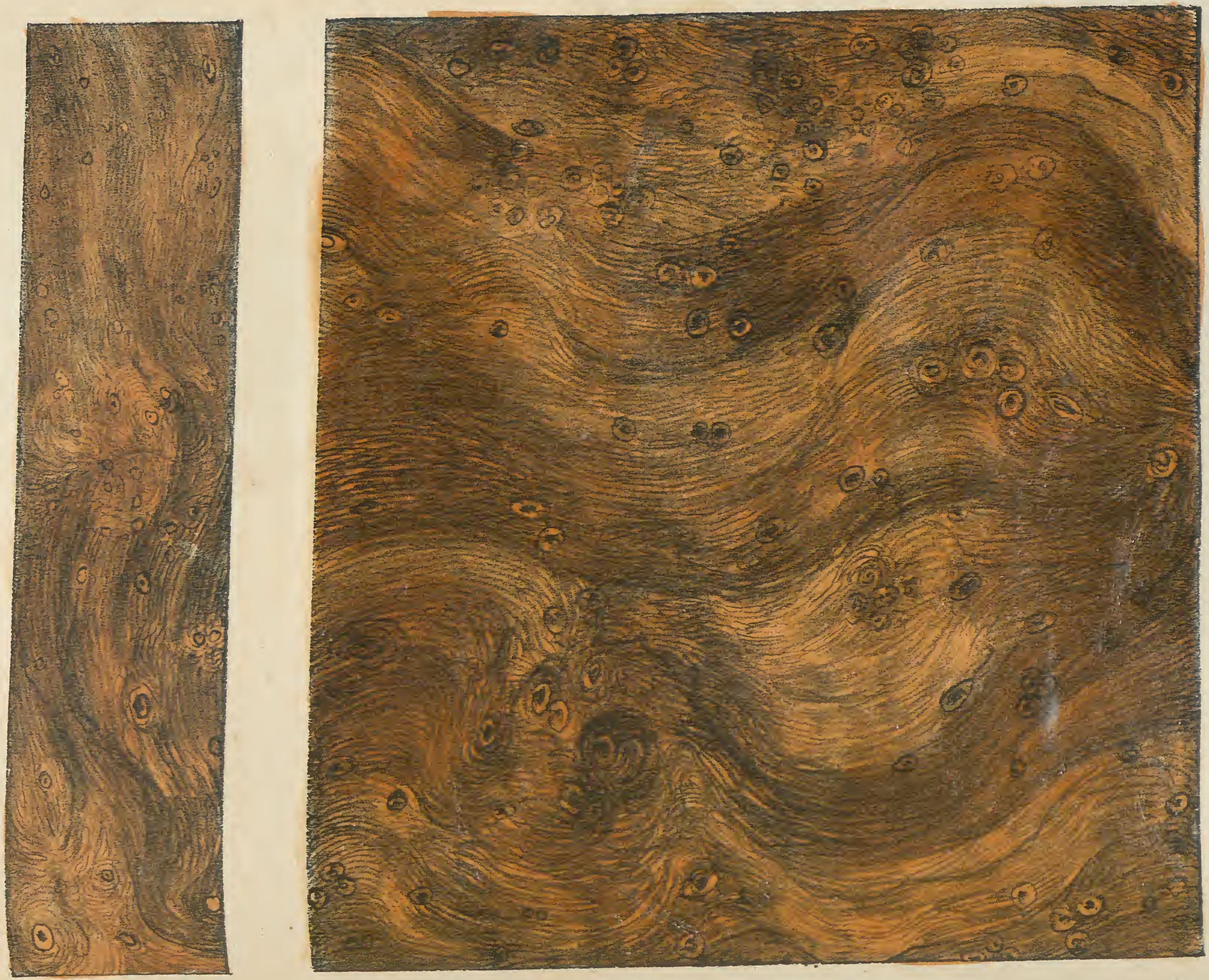
ROSE WOOD.

For Shop Fronts.



BIRDS EYE MAPLE.

Plate XIII.



BIRD'S-EYE MAPLE.

This wood requires the same ground as seen in oak, Fig. 1. Plate I. Plate XIII. is an exact representation of a piece of maple the same size. The grain is umber ground in ale, as the colour is very delicate in the finest specimens of this wood. The painting is effected as follows:—Taking some of the colour on the palette, work the flat hog's-hair brush seen Fig. 3. Plate V. well among the colour, it will by this means take up a great deal more than it would if dipped in a vessel that contained it. With this brush draw the veins very much curled, letting them wave in every direction, but, of course, inclining downward. As soon as the whole surface that is to be grained at once is covered, the feather of a quill is passed over it in the same direction that the flat brush was used, giving a sharp turn occasionally, and then proceeding over the lines again; this will split them into a variety of forms: while wet beat the veins with the softener the contrary way of the grain.

In the specimen now under consideration the small round specks, with a spot in the centre, are formed by placing the point of a camel-hair pencil on the work, and turning the handle round between the finger and thumb; this will take the distemper colour off the ground, leaving it quite bear: the brush must not be held in a slanting direction, but quite upright, and in taking it off it will leave the dot in the middle of the light. The work should now be suffered to dry, and afterwards a thin glaze of burnt umber drawn over it in veins, with the flat brush described in Plate V.: the hog's-hair brush will be found too heavy for this purpose. When the whole is quite dry, varnish it, and the work is finished.

The foregoing process will only answer where the work is required to be finely executed; for shop fronts, halls, &c. the imitation must be produced with more boldness and rapidity. The ground being prepared, draw the veins with the flat hog's-hair brush, with umber, and beat them in the contrary direction with a large duster; let this get dry, and then, with the flat brush, draw veins all over the work in every variety of curl, with a thin glaze of vandyke brown, and while this is wet dab the ends of your fingers on it in different parts, touching the work rather hard, and the bird's-eye will be formed nearly as well as with the brush, and with much greater expedition: soften and blend the whole with a badger-hair softener, and the work is done. Of course care must be taken that the spots made with the fingers are so varied that a person unacquainted with the process should not be led to suspect from a repetition of the five marks, made by the fingers and thumb in the same direction, that they are produced by this simple means: this can easily be avoided by turning the hand in different directions, and sometimes using only two or three fingers in various parts of the work. In some specimens of this wood the bird's-eye, as it is called, is not perfectly formed, and then the spots appear dark brown like small rough knots. This effect is produced by dipping the ends of the fingers into some vandyke brown mixed thickly, and dabbing them with caution on the work: this should be done very sparingly, as the dark spots are not considered a beauty in nature. The practitioner will often find these dark spots in pollard oak, and can produce them by the same means.

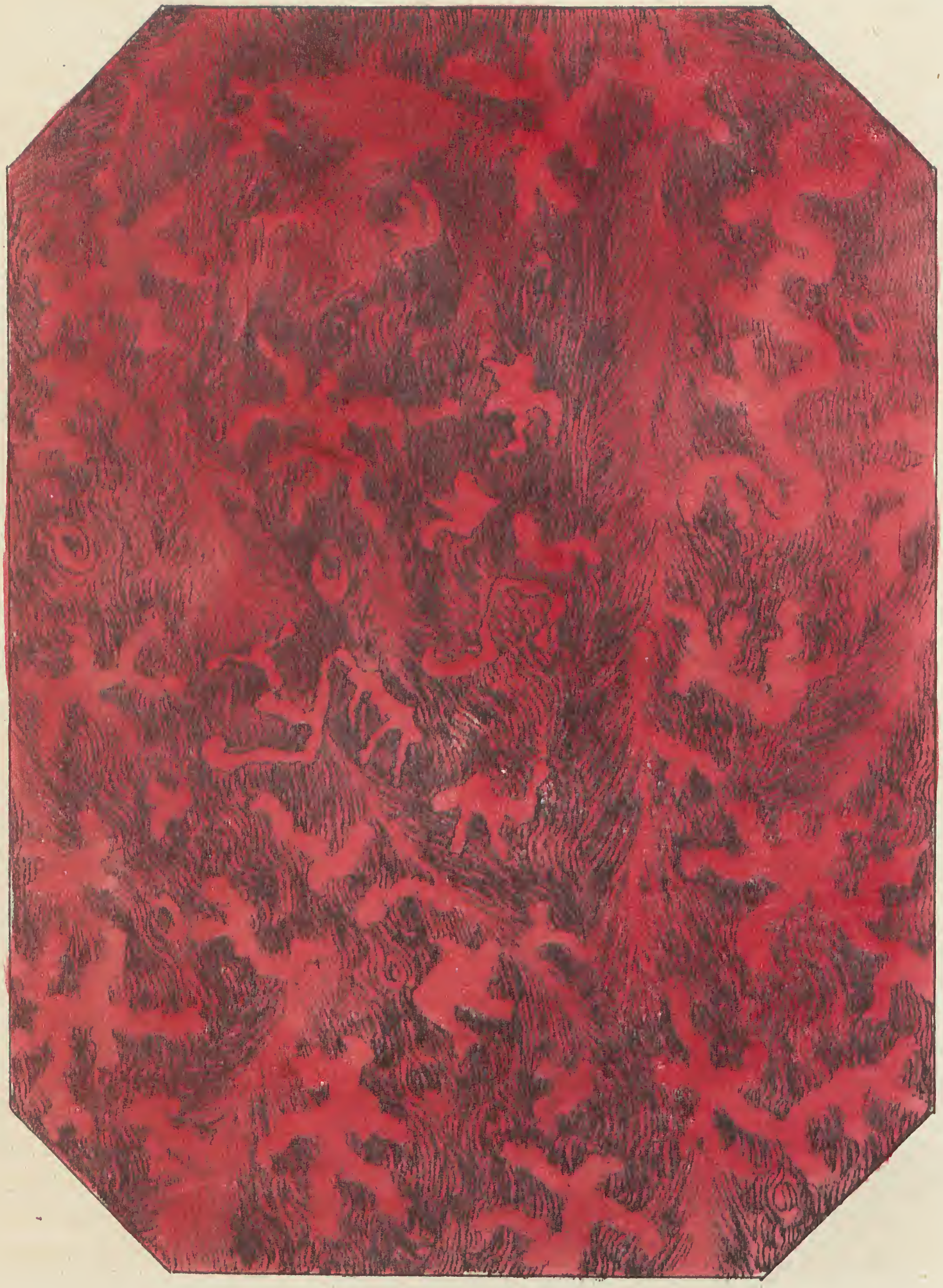
The learner who can produce the preceding specimen with success, will find but little difficulty in the imitation of any foreign wood that is placed before him. The principle on which they are all executed is the same, viz.—working with distemper colour on an oil ground; and in this early part of the Painters' Guide it will only be necessary to describe the method of producing the three beautiful specimens of red woods, which are accurate copies of pieces of the same size.

CORAL WOOD.

Plate XIV. is coral wood from Ceylon, a wood which has hitherto, from its great scarceness and consequent value, only been used in the most valuable and light kinds of cabinet work, and is therefore, from its novelty, a fit wood for the grainer to imitate, particularly in shop fronts that require glare and show, such as oilmen, hatters, and others;

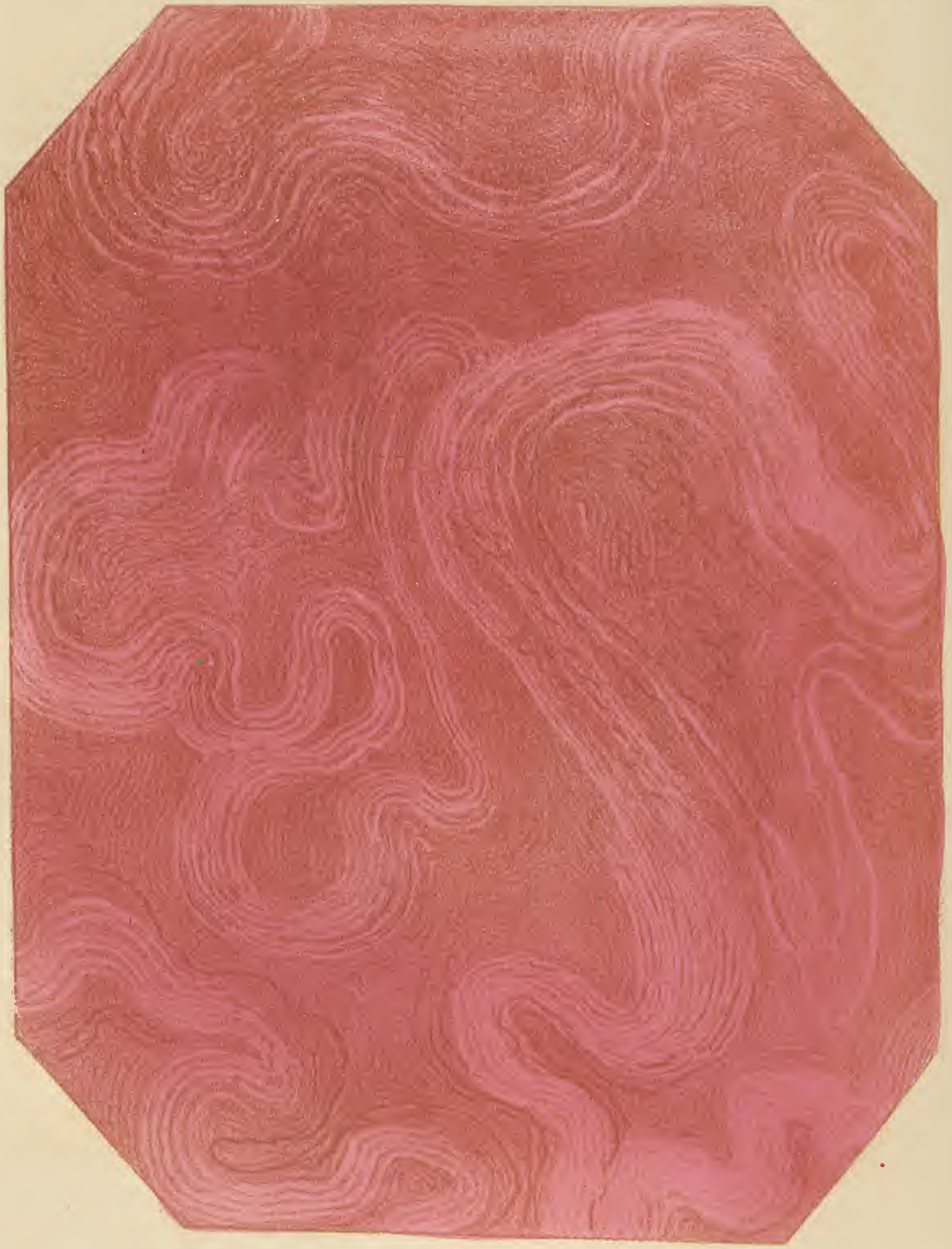
CORAL WOOD.

Plate XIV.



WATERED DAMASK CORAL WOOD

Plate XV



it can be produced at a trifling expense. The ground is white lead and vermillion, as will be seen by inspecting the specimen. The first broad veins are formed with vermillion, rose pink, and, in good work, drop lake. These must be ground finely in beer, and laid upon the ground with the flat camel-hair brush: the veins run in an upright direction, with a graceful curve; the edges should be softened with the badger-hair softener. When this colour is quite dry, take vandyke brown, and laying the flat hog's-hair brush over the red veins, draw it over them in parts, taking care to handle the brush so that it may bring the dark shade off with a point. It is difficult to express in words the precise movements and the various ways of handling the different tools, but the intelligent workman will easily understand it by referring to the plate. As soon as this dark vein is laid on, the comb, Fig 3. Plate II. may be applied; this will give the effect of the dark vein running into the other. Let the whole be softened, and when varnished the work is complete.

Some painters may object to the use of rose pink in this style of painting, as it is a colour known to fade very fast; but this is only when used in oil or in water colour that is not afterwards thickly varnished; it is the air operating upon it that causes it to fade, but when varnished the air is excluded, and it will stand as well as any other transparent colour: but there is no reason why lake should not be used entirely if the employer is disposed to pay for the free use of so expensive a colour.

Plate XV. is an elegant specimen of the watered damask coral. The ground is more pink than in the last plate, and should have rather more lake in its formation. Neither of the brushes hitherto used are fine enough to produce the beautiful watered grain of this wood: for this purpose a flat hog's-hair brush should be procured with fine bristles; the hairs of this brush must be very thin and cut away in irregular distances, as in the former example in Plate V. Fig. 3. but the spaces must be narrower and more frequent. The colour for the grain is formed with vermillion and rose pink ground in beer. The brush is well filled with this colour, and drawn over the panel to be painted in

bending all their energies to render their knowledge of service to persons in every walk of life, it is not to be doubted but some gentleman qualified for the task will, at no distant period, collect specimens of every kind of wood, and deposit them in a public institution for the inspection and benefit of the community.* What remains to be done in wood has recently been executed in marble; J. Scott, Esq. has, with a liberality and spirit which entitles him to the honourable appellation of a public benefactor, collected at a great expense and trouble specimens of every variety of marble at present known, and has presented them to the university of Oxford. They are consigned to the care of the Rev. Dr. Buckland, the Geological Professor, who is arranging them in classes previous to their being deposited in the Ashmolean Museum for public exhibition: representations of some of the most beautiful and most fit for imitation will be given in this work.

It may not be improper in this place to remark, that it would materially benefit every house painter to turn his attention to that branch of his profession called graining; and it is in the power of every one, who knows how to grind colours and handle a brush, to make some progress in the art, even if he does not attain proficiency. He would find this knowledge of the greatest service to him in furnishing employment when it is most required, viz. in the dreary months of winter; dreary to all, but in a tenfold degree to the journeyman house painter: whereas, if graining was more generally practised it would become cheap, and then, from its great beauty, would be more generally adopted for the decoration of houses. This work, from the drying nature of the materials, could be executed in the inside of buildings as well in the winter as in the summer; and the public would soon find their advantage in encouraging this style of decoration in a variety of ways. In addition to this, furniture painting, which is now only done with cheapness and effect in London or other large towns, could be executed with elegance in every village, and would become a source of profitable and pleasing employment.

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* If the author may use the freedom of pointing out the gentleman who would in all probability be most able to confer this favour upon a deserving body of artizans, he would ask and expect it from William Cobbet, Esq. whose thorough knowledge of foreign and English trees is only exceeded by his desire to benefit his countrymen. This expectation is grounded upon the numerous and valuable publications which have for so many years succeeded each other with such astonishing power and rapidity from the pen of this celebrated writer, and not from any personal acquaintance with Mr. Cobbet; as the author of this work never had the honour of speaking to him, or even the pleasure of seeing him.

These remarks will close the introductory instructions upon the graining of wood: its application to different kinds of work will come under our notice in the chapters on Furniture Painting and Interior Decoration.

CHAPTER III.

IMITATION OF MARBLES.

The marbles that are held in the greatest estimation by the statuary and architect, are the following:—

First, The white marble called Parian marble. This is a pure delicate and translucent species of granularly foliated limestone: it was the marble used by the ancient Greek sculptors for the formation of those elegant groups of figures, the Laocoon; the groups on the pediment of the Parthenon at Athens; and other subjects, fragments of which remain, and shew that the art of sculpture had attained a height of excellence which the most skilful of the modern sculptors have never hitherto equalled. As this marble in its most perfect state is quite white, it is easily imitated by the painter; the proper management of the light and shade to give brilliancy of effect to heads, groups of flowers, capitals of columns, and other ornaments in white marble, will be given in a future chapter.

Second, That variety of marble called cipolin, which is the statuary marble, traversed by veins of mica. This is commonly called by painters and masons white-veined marble.

Third, The marble called bardiglio, from Carrara, and others of a deep grey colour, interspersed with black veins, found in Britain, called in painting dove-coloured marble.

Fourth, Lumachella marble, which is a compact limestone of a brownish grey colour, containing shells which often retain their original pearly lustre.

Fifth, Florentine marble, which is a greyish compact argillaceous limestone, exhibiting designs of a yellowish brown colour, which sometimes appear like rocks, forests, ruins of houses, &c.

Sixth, The marbles of Syria, Arragon, and Sienna, which are yellow, interspersed with veins of ore of a variety of colours. In painting all the yellow marbles are usually known by the name of Sienna marble.

Seventh, Brocatello marble, which is a breccia limestone, composed of fragments of a yellowish red and purple colour, which are cemented by a semi-transparent white calcareous spar. This marble is but little used in England, but could be introduced by the imitative painter with good effect in many instances.

Eighth, The green marbles, known by the name of verde antique, verde di Corsica, and Egyptian green, which are composed of limestone, calcareous spar, serpentine, and asbestos. The marble called serpentine is found principally in Cornwall, and the Isle of Anglesea. Some of the specimens of this beautiful stone are equal, in brilliancy of colour and variety of figure, to verde antique or Egyptian green. The beds are of considerable size, and divided by seams of asbestos: it derives its name of serpentine from its variety of colours, supposed to resemble a serpent. The ancients called this stone ophites, from the Greek ὄφις, serpent; being speckled like the serpent's skin. In rich variety of colour, this stone far exceeds any other of the great rock formations: it will receive a high polish, and from its hardness is eminently calculated for either sculpture or architecture. The painter will find the imitation of this beautiful marble very effective. The specimens given are from the Oxford collection.

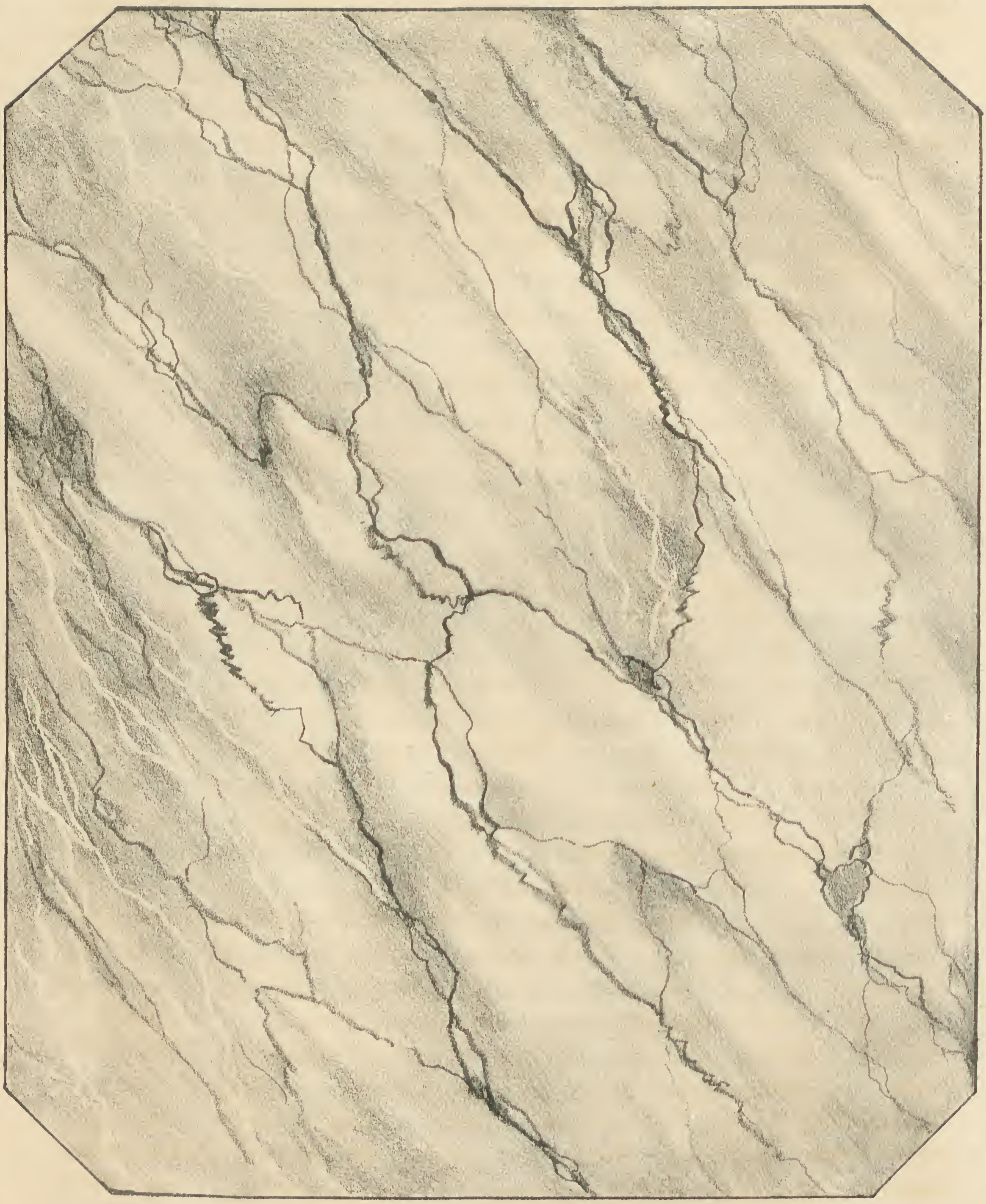
Ninth, Porphyry, speckled and veined.

All the variety of marbles that it is necessary for the decorative painter to be acquainted with will be found under one of the preceding heads:—

CIPOLIN, OR WHITE-VEINED MARBLE.

Marbles can be imitated on wood, in either oil or distemper colour; but as they are generally painted where they are exposed to the weather or the heat, oil is usually preferred to distemper. The ground for veined marble is white, prepared perfectly smooth. The first vein will be found, on inspecting a specimen of this marble, to be very faint: it is the broad vein of the mica, seen through a great depth of the semi-transparent body of the white. The shadows of white always partake of a yellow hue, and thus the faint vein will appear of a reddish grey; which is formed by mixing white, black, and Indian red, to the proper tint. This must be what in painting is called scumbled, or spread very thinly over the ground, in the forms that it is intended the veins should take. And it is here to be observed, that all marbles are beds of rock, that are veined by metalic or other substances running among them; and that the veins always run in the direction of the strata, precisely as thin streams of water would if poured upon an inclined plane; for instance, the top of a table a little raised on one side. If this experiment is tried it will be found that

VEINED MARBLE.



the streams, if they commence regularly, will, from some inequalities of the surface, soon alter their course, and turn in various directions; sometimes joining together, forming a sort of star, and then spreading into finer threads, while others will join and form a thick vein, but still running in various forms towards the bottom. This is precisely the way in which the various substances spread themselves on the limestone, of course penetrating the surface, and interspersed with the strata. From this experiment the painter will see that, however he may vary the direction of the veins, they must all appear to be travelling to the same point by different roads; and nothing can be more contrary to nature than those violent and eccentric breaks which painters of veined marble usually practise. This will apply to all marbles, except Porphyry, black and gold, and Florentine marble.

Fig. 1. Plate XVII. is the first broad vein of the marble. Fig. 2. is the vein nearer the surface. These are made a little more grey by adding more black: they are drawn very thin, taking the direction of the broad faint vein, and being divided according to previous studies from nature; sometimes making them form angles, and then letting the lines seem to float away in a zig-zag direction, as seen in the specimen. Fig. 3. shews the vein nearest the eye, as it approaches the surface. This is of course darker than either of the other veins, and is formed by adding a little lake to the black and white; and in some specimens a little blue will be required. This vein should be drawn with a fine sable pencil very thin, and made to take nearly the direction of the last vein; very little is required, but it will add greatly to the effect if put on with skill. The whole of these veins are put on one upon another while wet, and blended together with the badger-hair softener. The work should be suffered to get hard, and then the dark vein may be retouched in parts again, and the work is finished.

The foregoing is the way in which the specimens for this work were prepared, and they were done in a very short time. Generally painters suffer the work to dry every time they add a fresh vein; but the work is not soft, nor can they blend one vein with the other as they may when the whole is done at once; and it makes a most serious difference in the time the job is about, which is a great consideration both to the painter and the person that employs him.

The way in which cipolin or white-veined marble is produced in distemper is as follows:—The walls are well prepared with size, and two coats of common white-wash; the third coat must be whiting, finely mixed in milk. At the same time it will be necessary to have a little lamp black, Indian red, and damp blue, all ready for use; these should likewise be ground in milk, which is sufficiently glutinous to form a vehicle for laying on the colour. A separate brush must be used for each colour, and three or four long-haired camel-hair pencils, with long handles, and a stick to rest the arm upon while penciling the small veins. Every thing required in this work should be ready before the work is commenced, as the whole must be entirely finished while the work is wet. Commence the work at the top of the room and work downwards, taking care to wet no more than a yard or two at a time; with a very thin coat of the white ground in milk. As soon as this is laid on, take a little of the black and Venetian red, with some whiting; and quickly mixing them together with another brush kept on purpose for this tint, draw in the broad vein and soften it with the large brush used for the white: over the broad vein draw a narrow vein a little darker; let this vein run in various directions, as directed in the oil colour example. A few veins may now be drawn very thinly with the blue and Indian red. Let these appear as if they were small streams of water running together, and afterwards spreading in various directions, but always inclining the same way that the large vein is made to run. A clear camel-hair pencil should then be dipped in the white, and a thin white vein made over the blue veins.

The painter will see how necessary it is that he should have all the brushes and colours he requires at hand, and likewise be able to use them with spirit and expedition, as the space he has to marble will not keep sufficiently damp to soften the colours one into the other, more than a quarter of an hour; and if the ground is allowed to get too dry every thing put upon it will have hard chalky edges, and it will be necessary to commence the work entirely afresh. While this space is marbling, keep the sides and the bottom of the piece first coloured quite damp, by now and then passing the wet flat brush lightly over it, so that the edges may not get dry before you proceed to cover another space of the wall. In this way go over the whole of the room, taking care not to make it too dark, and making the veins run naturally one into the other. If this work is not intended to be varnished, it will still be sufficiently bound by the milk in a trifling degree incorporating with the size previously laid on, and it possesses the advantage of not cracking or peeling when dry. This work may be varnished, and it will then have all the effect of oil colour.

Halls, passages, bars of coffee houses, &c. painted in this style, have a beautiful effect; and they can be done cheap and quick, without any disagreeable smell: the colour will last two seasons well, and can then be restored without washing and scraping, if the wall is not greased or broken, and the rooms will always have a light fresh appearance. If they were done in oil they would of course last longer, but in crowded places the walls done in any way soon get soiled, and then their beauty is gone; it will therefore be to the interest of the painter and the employer to have them done frequently in the cheapest method. This, like most other colouring in distemper, can be performed nearly as well in the winter as the summer. For all temporary erections of course marbling in distemper is preferable to oil, if it is not greatly exposed to the rain.

DOVE-COLOURED MARBLE.

The ground for this marble may be a light lead colour. It is very easily executed by scumbling irregular broad veins of white and black, and blending them together with the duster: this is a good colour for common chimney pieces, as it will not easily soil. It will be obvious to the painter that he can make it light or dark, as he suffers the black or white to preponderate, but both colours must be so laid on that when they mix together they appear to form light and dark veins of grey, and not a decided black or white.

Some specimens of this marble are more mottled than others, but in painting any specimen can be easily imitated in the way here directed.

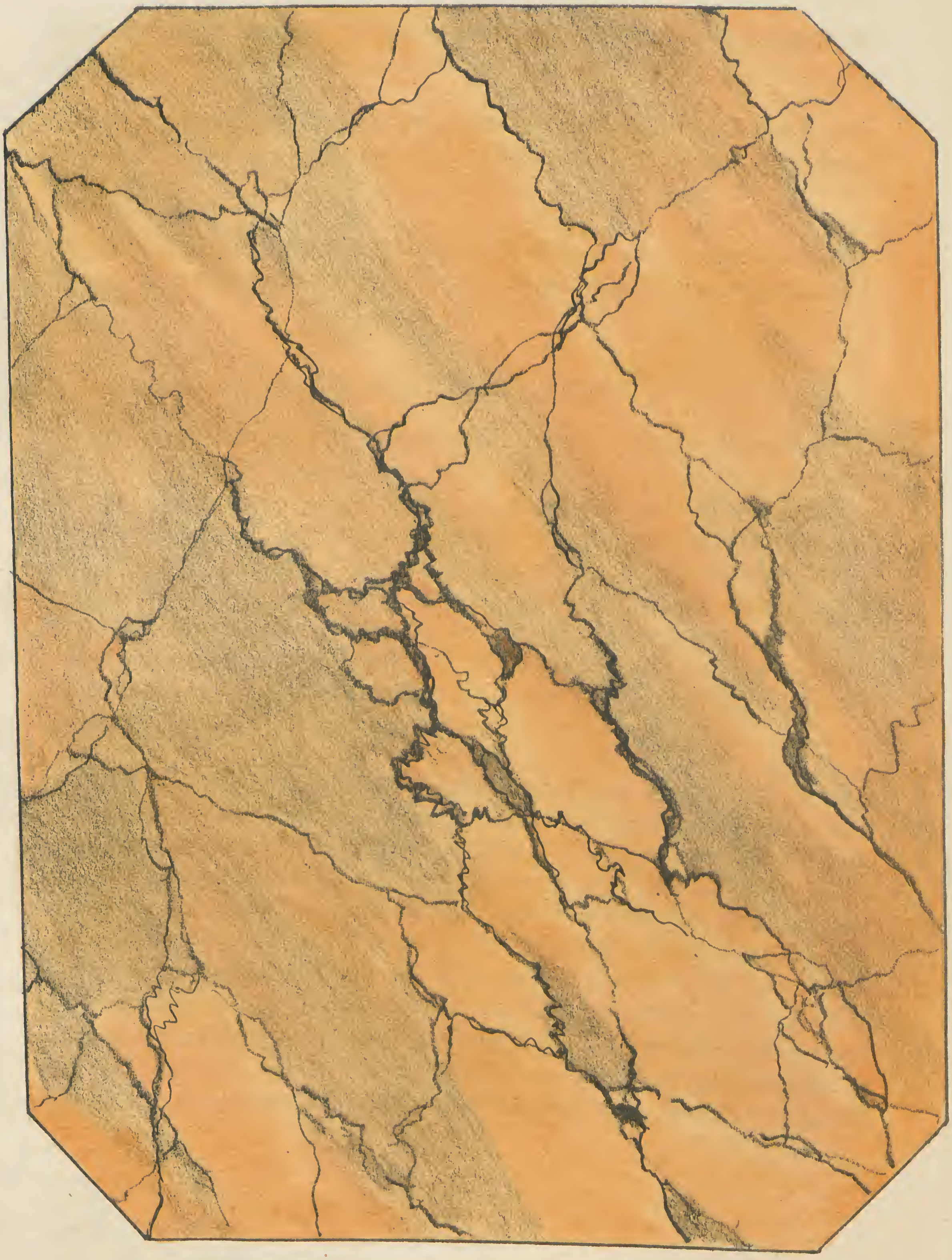
This marble is too dark to be often required in distemper; indeed it is seldom used, even in its natural state, except for monumental tablets.

FLORENTINE MARBLE.

A small specimen of this marble will be found in Fig. 1. Plate XXIII. The ground for this marble is white, Indian red, and black, mixed together to form a very light reddish neutral tint; the veins are umber or burnt sienna. They are laid on very irregularly while the ground colour is wet; sometimes they are very close together, and then seem to break suddenly into the form of rocks or ruins of houses: this must all be formed by patiently working them by hand. This imitation is sometimes introduced with good effect in small spaces, but the beauty of the work, if executed with the utmost correctness, will scarcely repay the great trouble there is in painting it.

There is an Italian argillaceous limestone, Fig. 2. Plate XXIII. which is a good vein colour for passages and halls, and is easily produced in distemper as follows:—Mix whiting in milk to the consistence of thick cream, and add yellow ochre and red, till it becomes a delicate yellowish fawn colour; have ready, in another basin, Indian red alone, and in another pure white. Having all the brushes ready, take a large brush and with great freedom dab on some of the fawn colour in ten or a dozen different dabs; if it is done with apparent carelessness the dabs will take different forms: let some be larger than others, and keep them all separate. As soon as these are laid on, dip the brush intended to be used in the Indian red into that colour, and work it with freedom in

SIENNA MARBLE.



all the spaces between the dabs of the fawn colour; then take a large duster to act as a softener, without any colour, and blend the edges of the fawn and red together; a very large space may be covered in this way in a little time; then taking the camel-hair pencils, draw a few thin veins, both of white and red, over the colour previously formed: when the whole is dry it will have the most pleasing effect, and though so easily executed, appears to require a great deal of work. This is far preferable to any plain distemper colours or stencil work for halls or passages, coffee rooms, &c. and can be executed nearly as cheap by an expert hand. Candle-light is as good as day-light for this work.

A specimen is given in Plate XXIII. and will be mentioned again under the head of COLOURING IN DISTEMPER AND STENCILING.

SIENNA MARBLE.

The yellow marbles of Syria, Arragon, and Sienna, have nearly the same appearance, and are known in England by the name of Sienna, that being the part of Spain where this beautiful marble is found in great abundance.

The ground colour for Sienna marble is pure yellow ochre: the varied tints that are first spread over the ground, are formed with yellow ochre and white, and the pigments called raw and burnt sienna. These shades must be tastefully displayed and made to run one into the other by being painted over the ground very thinly with a brush for each colour, and afterwards blending them together with the softener. This effect is endeavoured to be shewn in Fig. 1. Plate XXIV. While the shading colour is wet, the veins that are more removed from the surface are put on with a sable pencil. The colour is venetian red and a little prussian blue: the lines should run in the same direction as the shade: the darker veins nearer the surface are formed with lake, venetian red, and blue, mixed to the tint required; they must be drawn with great care and spirit. In some cases these fine lines run so closely together that they form a small mass, and then branch off in different directions. The veins in nature are transparent, and appear darker when crossing each other.

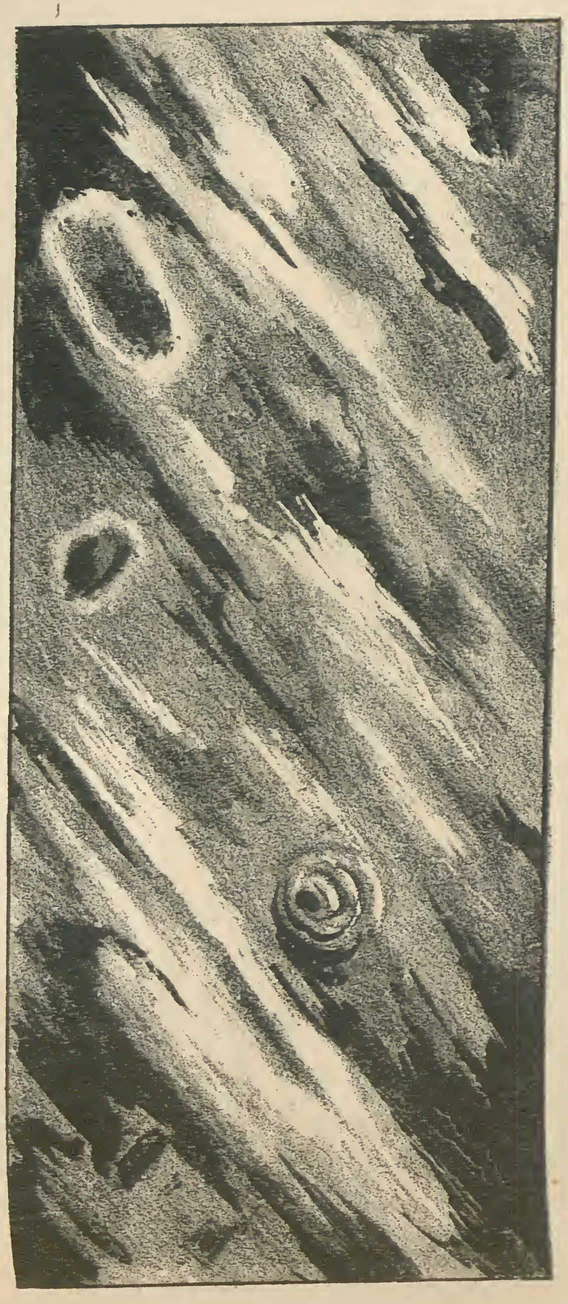
When the work is advanced thus far, it should be suffered to get dry; and then if the first shading colour shews too thin in parts, or not sufficiently varied, a glaze of raw and burnt sienna may be applied with good effect in different parts: the darkest veins should now be formed with lake and prussian blue, letting them run in small threads over those previously put on, as seen in Fig. 2. Plate XXIV. Every variety of this marble can be produced in the same way: the painter will of course take care to copy several specimens from nature before he attempts to paint columns, pilasters, or any large surface; and it will always be of service to have three or four pieces of this marble to refer to, in order to prevent a sameness in the work. The whole of the colours for this marble are ground in oil.

Sienna marble may be produced in distemper by colouring the surface intended for the ground with yellow ochre and whiting mixed with size. The wall, if plaster, should be well prepared and quite smooth. When the ground colour is dry, procure raw and burnt sienna, Indian yellow ochre, whiting, lake, and damp blue: these colours should be finely ground in beer and put in separate basins; a small quantity of each will produce a great deal of work, particularly of the lake and blue. The whiting should be mixed very thickly with milk, and a greater quantity of this pigment is always required than any of the others, as it is the body colour for every other pigment in painting in distemper. Having a separate brush for each colour, lay on the shades by painting large broad veins of the yellow ochre mixed with a little white; next to this draw a smaller shade of raw sienna, then a dash of white by itself, and near that some burnt sienna. These may be laid on with great freedom, taking care to vary the forms of the different veins, and letting them touch each other. When a yard or two of the space is covered in this way, dab the brush that is used in the whiting in four or five places over the work; then taking a large duster, dip it in some very thin size without any colour, and afterwards squeeze the wet out of it till it will not run freely: with this

Plate XVII

VERDE ANTIQUE.

1



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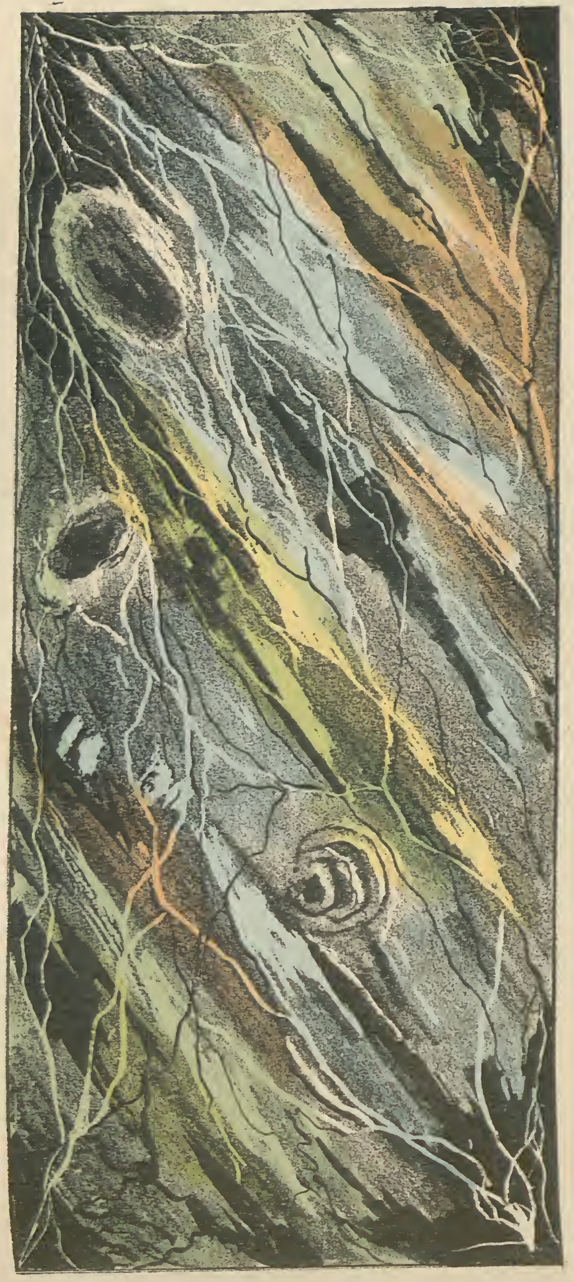

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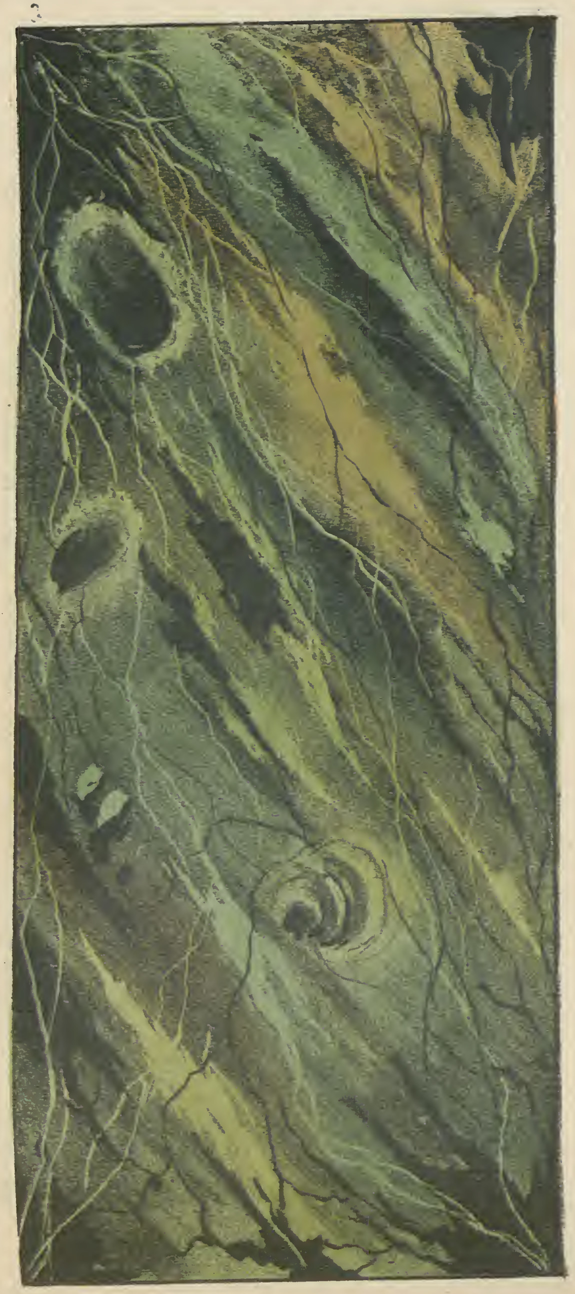


brush soften and blend the different shades together: while they are wet, put in the small veins with Indian red and blue, and over them still smaller veins with lake and blue. The whole will dry together, and give a pleasing imitation of this marble.

Imitations of Sienna marble are used with good effect for door posts, halls, passages, and in furniture painting, as will be shewn in the remarks on Furniture Painting.

GREEN MARBLES.

Verd antique, Egyptian green, and serpentine, are the three green marbles that are the most varied in colour and vein; and all require the same ground, viz. black: this must be prepared perfectly smooth in oil colour.

VERD ANTIQUE.

This superb marble, from its scarcity, is extremely expensive; and as it is at the same time one of the most delicate, as well as the most shewy marble used in architectural embellishment, there can be no wonder that ornamental painters have a great desire to excel in imitating this beautiful production of nature; and it is for want of a proper knowledge, or due consideration of the different species of green marble, that so few succeed in giving even a tolerable imitation of it.

It will be necessary that the painter should procure a small piece of real verd antique before he commences its imitation, and that he take every opportunity of sketching the forms of the small formations of the fossil remains which are found in such abundance in this marble, and likewise the forms of the large and small veins.

The small block, drawn in Plate XIX. is an exact representation of a piece of marble of the same size. Fig. 1. shews the first colour laid on the black ground, which is white scumbled on very thin, and taking care to let it assume the same shape as in nature. This should be laid on with a hog's-hair tool, so thin in places that the white is scarcely perceptible, and in others nearly opaque in the lightest parts: while the white is wet, take a piece of wash leather and rub off the colour in the shape you wish the shells or other fossil remains to appear. By this means you will leave a thickness of colour at the edges, which will of course shew, when varnished, much lighter than any other part; and make both the light and dark parts appear more brilliant from the contrast. Other shells are formed like circles or convolutions; these may be taken out of the white mass by cutting a square piece of cork, and notching it in two or three places, press it hard upon the work, turning it round between the finger and thumb; it will leave the circles quite as natural, or even more so, than if they were drawn with a pencil.

It is impossible to particularize the great variety of formations found in the finest specimens of this marble, but their forms will suggest the readiest means of wiping the white away, so as to allow the black ground to represent them. This will be better understood by referring to the three figures in Plate XIX. Fig. 1. is merely black and white; the black, the ground; the white, white lead or flake white; the small spots are the forms of the shells, &c. taken out with the wash leather. When this is done a tool is made of the feather of a goose quill, with great part of the feathers cut away, leaving the rest at unequal distances. This easily formed tool may be passed over the white, and will take it out in small irregular veins over the black; and by suddenly checking the hand, and making it take an angular direction, the veins will break and curl as they do in nature, appearing with more freedom, fineness, and variety, than they would in some hours painting with the sable-pencil, the usual mode of drawing veins in this marble. When the work is veined sufficiently, it must be suffered to dry before any more can be done to it.

Fig. 2. The work is heightened by glazing over it with distemper colour, in some places with prussian blue, in others raw sienna, and part left still black and white. Most painters, if they heighten the black and white at all, glaze with oil colours; but in this case the work

must be left another day to dry; but if done in distemper, the colours can be varied to any tint, and will be dry and fit to work over in a few minutes. When the distemper colour is dry, the feather, prepared as before, may be dipped in whiting ground very fine in milk, and the light veins may be carried over the distemper colour; the thicker veins may be touched with a sable pencil, and likewise a few dark veins of prussian blue may be made to curl lightly over the strong lights. All this, if done as directed, will only be the work of a few minutes on a surface a yard square; and when dry, (which it will be almost as soon as the colour is laid on,) it will be ready for the last glaze, as seen in Fig. 3. This is prussian blue and raw sienna mixed together, till the sienna preponderates; it will then, if tried on the white, appear a fine warm green: glaze the whole of the work with these colours ground in oil, and the white, black, and the other colours, previously laid on, will all appear of a beautiful green; and the imitation of the marble will be complete when varnished.

It is extremely difficult to convey a clear meaning of any kind of painting by words, without seeing another person perform it; but the author has had the pleasure of seeing several beautiful specimens of this marble produced by persons from the above instructions only; he therefore, with great confidence, presumes it is sufficiently clear for the use of beginners; and after the first two or three attempts, various improvements and additions, that no words could suggest, will present themselves to their notice.

The principal cause of the repeated failures that most painters experience is the error in the preparation of the ground. This is in most cases supposed to be green; the black and white is then put upon this, but both of them are too strong for the ground, which is completely obscured by them; or if the colours are put on so thin that some portion of the green is still seen, neither the black nor white can be opaque in any part, nor can the veins run clear and free. Hours of toil frequently end in disappointment, and the clever painter gives up the work in despair, merely from the want of a friendly hint at the commencement.

For works that do not require durability, and are not exposed to the rain, such as the interior of theatres, ball and concert rooms, &c. where pilasters of this elegant coloured marble are introduced, they can be easily produced in distemper.

If the work has been coloured in distemper before, it will require to be washed and scraped; but if painted in oil, it will require no other preparation than washing with soap and water, to take away any grease that may be upon it. The colours and brushes required should all be ready. Commence by laying on lamp black well ground in size, with a large brush; the work should not be entirely covered with the black; it should be put on in large veins or streaks: then having ready another brush with whiting, dash in the white between the spaces left by the black; have ready a large duster, and blend both the white and the black together, making the veins imperceptibly run into each other. The whole column or pilaster may be covered in this way at once; then take a small tool and dip it into the black, and on the lightest parts of the white dab the black carelessly in spots of various sizes, to represent the shells, &c. and with another brush, with white, dab figures on the black. The flat hog's-hair brush, with the hairs separated, may then be dipped in the white, and drawn in small irregular veins over the black. As the work is drying, a vein of pure black may be laid over that part which has become grey from its incorporation with the white: this should be formed in a zig-zag, wavy direction. The work should now be suffered to dry. When dry, a very thin glaze of king's yellow, ground in thin size, should be laid on quickly, with a light hand, over the work: this will prevent the distemper colour from absorbing the varnish.

The varnish should be the common spirit varnish, in which a little prussian blue and raw sienna may be ground to form a green glaze. When the whole is dry, it will look nearly as well as the imitation in oil; but of course is not so durable, nor will it bear the glare of daylight so well as the method first described.

There is another method of imitating verd antique, and when it can be applied on a flat surface it is perhaps the most perfect imitation that can be produced. The ground may be prepared in oil in any common stone colour; or if done on old work it needs no other preparation than merely rubbing down the roughness of the surface with pumice-stone, and cleaning with soap and water; let it afterwards be suffered to dry. Lamp black and whiting must be both prepared, the black ground in thin size, the white in milk. The black is put on with a large brush, first leaving spaces in various parts of the work; the whiting is then poured upon the black in thin streams, and the table or slab to be painted is moved in various directions to let the white run in veins among the black, which by this means floats and branches out into more natural and foliated veins than it is possible to produce with a brush: this floating is repeated till the white vein is sufficiently varied. Small threads may be drawn from the wet masses of white over the dark parts that are dry, by means of the wet feather.

When the whole is dry the fossil figures are drawn with a camel-hair pencil; when dry the black and white is varnished with spirit varnish. When the varnish is hard, a few bright white lines may be drawn with the sable pencil over the colour beneath, and thin glaze of oil colour of various tints placed where required; when this is dry the green glazing colour, composed of prussian blue and raw sienna, is applied over the whole: it is afterwards varnished and polished.

Specimens of slabs for halls, and sideboards, have been produced so effectually in this style, as to be scarcely distinguished from marble; and the different coats of varnish renders the colouring very durable.

EGYPTIAN GREEN.

This marble, in colour, nearly resembles the verde antique: it is a superior serpentine, and there are many different sorts, which are distinguished by separate names, to enumerate which would be of little service to the painter, as they would all be generally called by the above title. It differs from verd antique in the form of the veins, which run in a more horizontal direction, having a greater quantity of small fossil substances mixed with it, and the dark veins frequently running in streaks, which often appear as if broken by violence.

SERPENTINE.

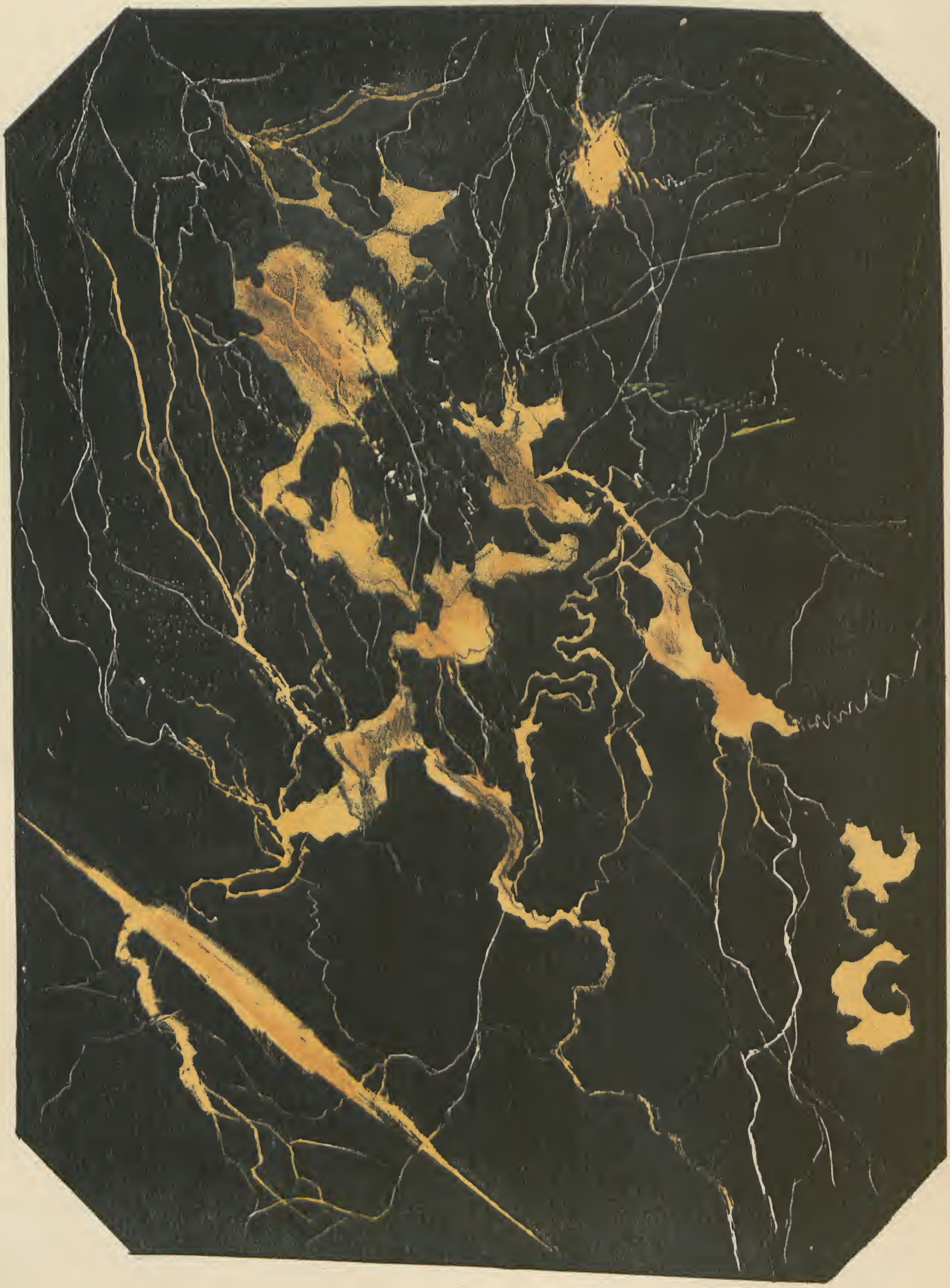
The same kind of marble, though not so variegated in vein or colour, is found in Germany, Russia, and in England. It is called serpentine from its supposed resemblance to the skin of the serpent, and in rich variety of colour and almost indestructable hardness, and therefore eminently suitable for architectural ornaments. It is divided into two varieties—noble, or common serpentine.

Noble or precious serpentine has nearly the same appearance with the green marbles of the east, called Egyptian green. The green is generally the cold colour of the leek, but varies in shades, some appearing the darkest olive; the veins, which appear black, sometimes run in an horizontal direction, and then suddenly break and appear nearly upright; in other cases they seem to have undergone a violent concussion, and become broken and shivered to small pieces. It is the business of the geologist to explain the cause of this appearance in one of the most solid minerals; it is sufficient for the painter to know that it is so, and to endeavour to make the painting as near an imitation of the original as possible.

The common serpentine is found in great abundance in the Isle of Anglesea: it is not so bright or so varied as the precious; the dark shades of green are much broader, and the light veins not so fine and retriculated; and consequently the fossil remains that are white shew more distinctly in small long square pieces of various sizes and forms. The black vein is so mixed with the darkest shades of green as to be scarcely perceptible in some instances, and renders this marble dull, and unfit for ornamental painting.

The mode of producing all the variety of green marbles, both in oil and distemper colour, must be the same as directed in verd antique. The ground must in all cases be black, and the different shades of green formed by scumbling the white over the black, more or less

BLACK and GOLD MARBLE.



opaque, according to the variety of shade required; and when the whole is finished, glazing with green according to the tint of the marble.

BLACK AND GOLD MARBLE.

This marble, from the deep jet black of the ground and the splendour and variety of the veins with which it is interspersed, is exceedingly beautiful, and in great use for superior chimney pieces.

The ground is black, and the large spots from which the fibrous veins run are yellow ochre and white, mixed with a little vermillion to give them a gold tinge. These masses must be dabbed with freedom upon the ground with the brush full of colour, and while quite fluid, small threads must be drawn from it in all directions, some larger than others, as seen in Plate XX. A white vein is sometimes seen running in the deepest parts of the black, with small threads attached to it which cross each other and the yellow veins in all directions. Care should be taken that the threads are connected with, and run in some degree in the same direction with the thicker veins. If the ground of this is properly prepared, the yellow and white veins may both be painted at once in oil colour, and when dry and varnished the work is finished.

If the work is required in a very short time, and durability is not an object, the ground and veining may be done very quickly in distemper colours; and when varnished will look very well for a short time; but as this marble is too dark for outside work, and is chiefly used for chimney pieces, it is much better painted in oil than in distemper.

In cabinet work most beautiful imitations of the finest specimens of this marble are produced by spreading a leaf or two of gold in any part of the work, where the gold veins are intended to run, and silver leaf where the white vein is to be displayed. The black ground, rather thickly, may then be painted over the whole surface, covering the gold and silver leaf; and after the colour has been on a short time, take a round-pointed bodkin, and draw the colour in small retriculated veins from off the gold and silver leaf; the metal will then shew in fine lines. The larger masses may be wiped off with the wash leather on the point of a stick. When the black is dry, the yellow and white veins may be painted as before directed, and drawn over the gold and silver, which will by this means shew through them, and give the exact appearance of nature, when the work is properly varnished and polished.

PORPHYRY.

This is one of the red marbles, extremely beautiful in nature, and can be very successfully and easily imitated in painting.

The ground colour is venetian red, brightened with a little vermillion and white, to the tint seen in Fig. 1. Plate XXI. The first layer of spots as seen in Fig. 2. is produced by sprinkling in the following way:—A little of the ground colour and white, the latter preponderating, is mixed together in a paint pot; into which a large brush should be dipped and well worked in the colour. The brush should then be drawn over the edge of the palette knife, held over the paint pot, till all the colour appears drained out of the brush; then putting the handle between the palms of the hands, turn it round swiftly, or what is usually called wring the brush, till scarcely any colour can be seen upon it; then taking the back of an old knife, hold it over the work and strike the handle of the brush upon it: the colour that still remains in the brush will thus fall upon the space to be spotted in a variety of small points. When it is sufficiently coloured it must be suffered to get dry, and the sprinkling may then be repeated by dipping the brush into a little colour deeper than the ground; it may be indian red, with a very little white to give it body. The sprinkling with this colour must be done very sparingly, and rather more in some parts than others; the last sprinkle is white: this must be in very fine spots, which will easily be produced by taking a clean small tool, and working the white well into it by rubbing it about on the palette: then take as much colour as possible out of the brush by scraping it with the palette knife, and wringing. When the brush has got so little colour in it that it will

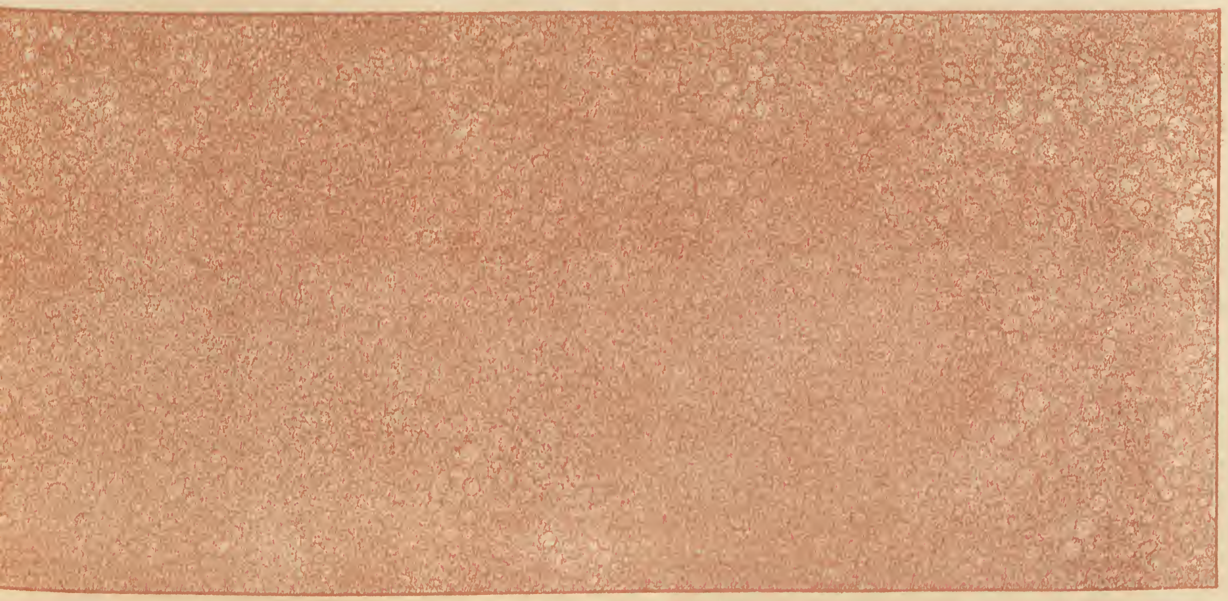


Plate XXII

MARBLE.

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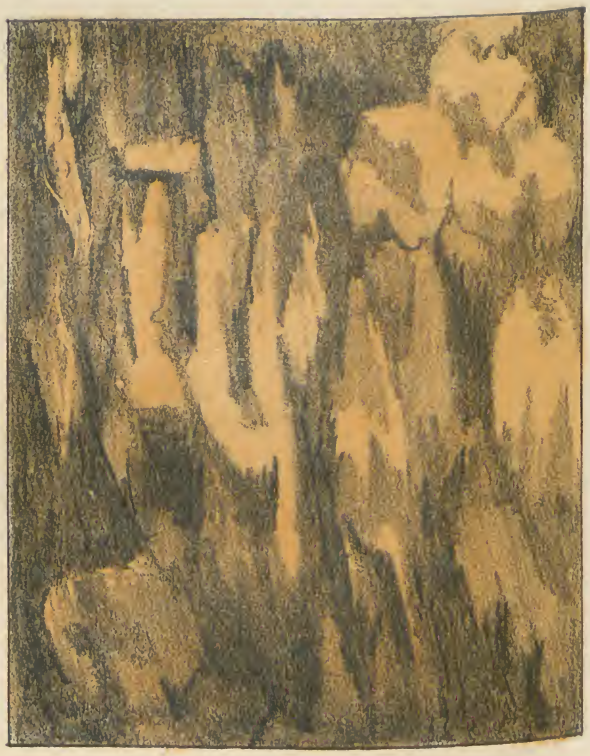
1



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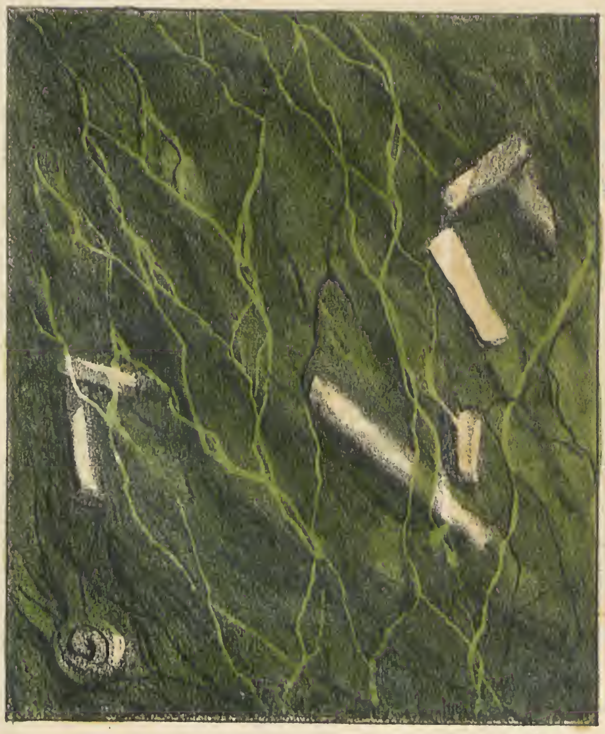

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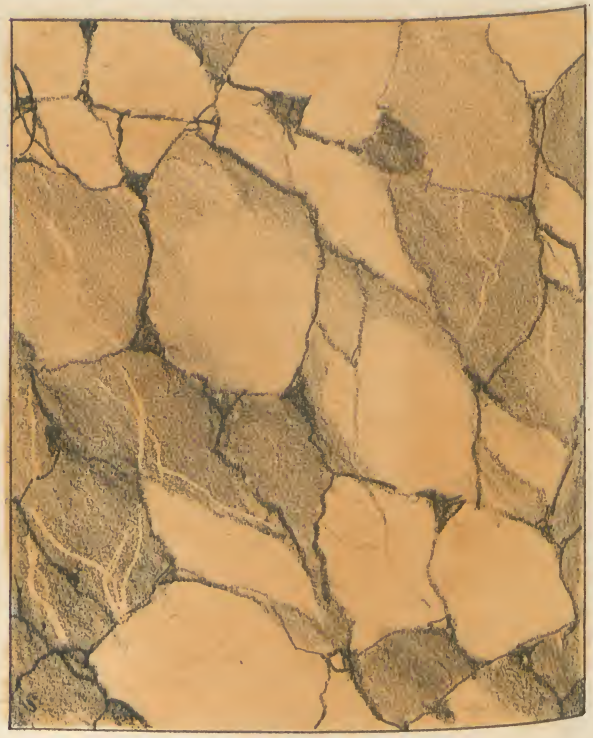


scarcely give any colour if tried on a board, it has still sufficient for the purpose of sprinkling. Hold the stick at least a yard above the work, or higher if you please, as the higher the stick upon which the brush is to strike is held, the finer will the spots descend upon the surface; nor will it make any difference if the work is perpendicular, as the brush may be struck in such a direction, that the spots may fall slantingly a considerable distance before they are fixed on the work. In the specimen seen in Plate XXI. Fig. 3. the three layers of sprinkling are laid on, and in addition a narrow opaque white vein is seen running among the spots: from the vein transparent threads are drawn in various directions. This cannot be added till the whole of the sprinkling is quite dry and hard; it may then be formed with a sable pencil, and the threads drawn out with a feather. The work is then varnished, and the imitation will be excellent if due care has been taken in sprinkling.

Every variety of spotted marble may be produced in this way, due attention being paid to the ground, which is always the colour that preponderates both in wood and marble. After the directions given upon painting other marbles in distemper, but little instruction can be required in producing this. The ground and colours must be the same, only ground in size or milk, instead of oil. The sprinkling is performed in the same way: but in dipping the brush in the colour, care must be taken that it is not made too wet, or it will be a long time before the brush is sufficiently discharged of the colour and water to be fit for sprinkling; and if used too wet the spots will run and mix together. The only advantage obtained by painting spotted marble in distemper is, that the whole can be done at once in a much shorter time than in oil; but for outside work the latter is greatly to be preferred.

The small specimen, Fig. 1. Plate XXII. is the Florentine marble, mentioned in page 51, where the directions for producing it are given. Fig. 2. is the argillaceous limestone, mentioned in the same page. Fig. 3. is a specimen of dove-coloured marble. Fig. 4. common English serpentine.

The instructions given for the imitation of the marbles already mentioned, will, by varying the colours according to the subject, answer for almost any other specimens that may come under the notice of the painter. Some of the rare specimens that are at present little known in England will be shewn in a future chapter.

CHAPTER IV.

ON PAINTING, STAINING, AND GILDING FURNITURE—THE PREPARATION AND APPLICATION OF STAINS FOR WOOD—WITH THE PREPARATION OF VARNISHES—THE METHOD OF POLISHING, &c.

Our great intercourse with France, and other continental nations, since the peace, has introduced a taste for light and elegant French furniture, which is daily becoming more general, and opening a source of pleasing and profitable employment to the decorative painter. It must be obvious to all, that the painter who has some knowledge of drawing and the rudiments of perspective, will have great advantage over the man who has not attained this knowledge; and it should therefore be the anxious endeavour of the decorative painter to become acquainted with the rudiments, at least, of this the highest, most lucrative, and at the same time, most pleasing department of his art; but there is a possibility of becoming a furniture painter, to a certain extent, without being able to draw; and as this work is intended for the benefit of workmen of every capacity, the proper method of decorating furniture, without a knowledge of drawing, will be given in this chapter; and the higher departments of decorative furniture, &c. will be treated on after the introductory remarks on the elements of drawing light and shade, and perspective, which will be given in a future chapter.

Previous to entering on the method of painting chairs, and other furniture, it will be necessary to become acquainted with the various stains, as the staining and painting are frequently used together with great advantage.

RED STAIN FOR WOOD.

For a bright red stain for wood make a strong infusion of Brazil chips in water impregnated with pearlash, in the proportion of an ounce of pearlash to a gallon of water; this will be sufficient for a pound of Brasil wood. These must stand together two or three days, often stirring the mixture. Before it is used boil the mixture two or three hours, and while boiling hot, brush over the wood intended to be stained three or four times, or as often as it requires, till the stain has obtained the proper tint of red intended to be given to the wood. While wet brush it over with alum-water, made in the proportion of two ounces of alum to a quart of water.

For a lighter red, approaching to pink, add to a gallon of the above infusion of Brasil wood two additional ounces of pearlash, used as before directed: but it is necessary, in this case, to brush the wood over often with the alum-water. By increasing the proportion of pearlash the red may be rendered yet paler; but it is proper, when more pearlash is added, to give a proportionate quantity of alum-water.

A very dark red stain may be produced from logwood as follows:—Take half a pound of logwood, boil it with two quarts of water till it is a very dark red; to this add half an ounce of salt of tartar, and boil them together two hours; apply it to the wood boiling hot.

The old method of colouring wood red (for it can scarcely be called staining) is as follows:—Dissolve an ounce of dragon's blood in a pint of spirits of wine, and brush over the wood till it appears the colour required.

YELLOW STAIN.

Any white wood may be stained a beautiful yellow as follows:—Put an ounce of turmeric, ground to powder, to a pint of spirits of wine, and let them stand together three or four days, shaking the mixture at intervals: when the tincture is sufficiently high coloured strain it off, and it is fit for use. It is applied to the wood by brushing it over three or four times, taking care that the first stain is dry before the second is applied. If the colour is required to have a reddish cast, it may be produced by adding a little dragon's blood to the mixture.

A permanent yellow stain may be obtained from the tincture of French berries, prepared as follows:—Take one pound of French berries and put them in a gallon of soft water, with half an ounce of alum; boil them two hours, and while boiling brush over the wood till it becomes the colour required. After the stain has been on some hours, so that the wood is quite dry, it must be brushed over with a weak solution of alum and water.

BLUE STAIN.

Wood may be stained blue by either solution of copper or indigo. The copper will produce a brighter colour, and is more generally practicable than the latter, because indigo can be used only in that state to which it is brought by the manner of preparation used by the dyers, of whom indeed it must be had, as it cannot be properly so prepared but in large quantities, and with a particular apparatus.

The method of staining wood blue with copper is as follows:—Blue verditer must be first prepared from copper, by taking any quantity required of the refiners' solution of copper, which is made in the precipitation of silver from the spirit of nitre; or copper can be dissolved by mixing copper filings or slips in aquafortis, putting in the filings or small pieces of copper to the aquafortis till all effervescence ceases; add to it of starch finely powdered, the proportion of one-fifth to the weight of copper dissolved; make then a solution of pearlash in water, and filter it; put as much of this solution to the vessel containing the solution of copper as will cause the copper to sink to the bottom of the vessel, in a fine green powder: this is called precipitating the copper. When the pearlash is first put in, the liquid in which the copper is dissolved will appear of a darkish muddy green; but by adding more of the solution of pearlash it will in a short time become clear, the copper being precipitated into a fine green powder. The water must then be changed three or four times, till it is quite tasteless; when the powder is well washed, drain the water off, let it remain until quite dry, and it will be fit for use.

This solution of copper is very useful in painting on glass, as will be seen in the chapter devoted to that subject.

After the wood intended to be stained has been brushed over till it is stained a dark green, make a strong solution of pearlash, in the proportion of two ounces of pearlash to a pint of water: the wood must be brushed over with this solution while boiling hot, and it will appear of a fine deep blue colour.

The copper, with the omission of the solution of pearlash, will produce a green of any strength required, according to the number of times it is brushed over the wood.

When indigo is used for staining wood blue, it must be managed thus:—Take the indigo, as prepared by the dyers, and brush the wood with it boiling hot; prepare a solution of cream of tartar, by boiling three ounces of the cream of tartar in a quart of water; and with this solution used copiously brush over the wood before the moisture of the indigo is quite absorbed.

PURPLE STAIN.

Brush the wood over several times with a strong decoction of logwood and brasil, made in the proportion of one pound of logwood to a quarter of a pound of brasil: put them both into a gallon of water, and let it boil two or three hours: the liquid must be applied to the wood boiling hot. When it is dry, brush it over with a solution of pearlash, containing a quarter of an ounce of pearlash to half a gallon of water. This solution must be carefully used, as it will gradually change the colour from a brown red, which it is originally found to be, to a dark blue purple, and therefore its effect must be restrained to the due point for producing the colour desired.

STAINING WOOD BLACK.

Brush the wood several times with the hot decoction of logwood, made as above, but without the brasil; then having prepared an infusion of galls, by putting a quarter of a pound of powdered galls to two quarts of water, and setting them near a gentle heat for three or four days, brush the wood over with it three or four times, and then pass over it again while yet wet with a solution of green vitriol in water, in the proportion of two ounces to a quart.

A very fine black may be produced by brushing the wood several times over with a solution of copper in aquafortis, and afterwards with the decoction of logwood, which must be repeated till the colour is of sufficient force, and the greenness produced by the solution of the copper wholly overcome.

A common black stain may be produced by putting a pound of nails into half a gallon of vinegar, with a small quantity of verdigris. This is the common black stain for chairs, and is likewise useful to mix with colours that require grain, as rose wood, tulip, &c.

MAHOGANY STAIN.

This stain is very useful, and if well prepared and applied to wood proper for the purpose, will greatly resemble real mahogany. This stain may be of different hues, as the natural wood varies greatly, being of all the intermediate tints between black and red, according to the age, or sometimes the original nature of different pieces.

For the light red brown use a decoction of madder and fustic wood, ground in water: the proportion should be half a pound of madder and a quarter of a pound of fustic to a gallon. This must be brushed over the wood to be stained while boiling hot, till the due colour is obtained, and if the grain of the wood is handsome it will have greatly the appearance of mahogany. If the grain is not sufficiently varied, a varnish brush dipped into the black stain, and passed lightly over the wood while wet, will greatly help it, and give it the effect of the best specimens of the dark Honduras mahogany.

A fine stain may be produced by mixing the tincture of dragon's blood and turmeric in spirits of wine; and by increasing or diminishing the proportion of each of the ingredients, the brown stain may be varied to a more red or yellow cast at pleasure. This succeeds better upon wood that has some tinge of brown than upon whiter.

For Spanish mahogany take the infusion of madder, in the proportion of half a pound of madder, one ounce of fustic, and two ounces of logwood; and when the wood to be stained has been several times brushed over and is allowed to dry, it must be slightly brushed over with water in which pearlash has been dissolved, in the proportion of about a quarter of an ounce to a quart.

Any stain of the intermediate colours may be made by mixing these ingredients, or varying the proportion of them.

The preceding stains may, by judicious management and blending together, be varied to represent many fancy woods; for instance, the excellent imitation of rose wood chairs, which are now so commonly sold at every broker's shop:—The chairs are made of beech. At the principal manufactories they are dipped in a large copper containing the boiling red stain, and then taken out, and allowed to dry before they are dipped again; nor does this standing to dry cause any delay where great quantities are to be stained, as that which is first dipped will be dry before the whole have been dipped once in the stain. When the red stain is sufficiently strong a flat varnish brush, with the hairs separated in the way described in Plate V. is dipped in the black stain, and drawn over the chairs that have been stained red. On an average it does not take five minutes to give this beautiful imitation of rose wood, and the stain is almost as permanent as the real rose wood.

It will not be necessary for the ornamental painter to enter deeply into the art of staining wood, as it is rather foreign to his purpose; and of more consequence to the cabinet maker than the painter: indeed the use of stains in a great measure deprives the painter of work; nor can they be used to very great advantage for furniture except in large manufactories.

Chairs, bookcases, &c. may be grained in imitation of rose wood, according to the directions and examples given in Plate X. Should they require to be done very quickly at a low price, mix indian red and whiting to the tint required for the ground: a little rose pink added to these will give a brilliant tint; grind these well together in water, and, when properly mixed, add a little common size to bind them. With this red distemper colour paint the chairs once over if they are old ones that require repainting, and twice over if it is new work. Take care that the size is not too strong, as the circular parts of the chairs will be very liable to crack and peel. When the red is quite dry, take a little lamp black and grind it well either in size or beer: mix it to the thickness required; and then taking the flat hog's-hair brush, with the hairs separated, go lightly over the chairs, taking care to turn and curve the grain to make it appear natural. When this is dry, varnish with the common spirit varnish, and the work will be done nearly as quick as staining, though not quite so durable.

The foregoing method is only advisable where the painter has to deal with a customer who ties him down in price. In that case it is only honesty to himself, and not unfair to the employer, to perform the work in the cheapest way; but if a fair price is paid for painting chairs, it is of course better in all respects to paint them in oil: they will look well three times as long as they would if painted in distemper, and may be washed repeatedly without fear of disturbing the colour. In all cases 'honesty is the best policy;' and in chair painting it will be better for the painter to tell the employer the price of painting chairs in both styles, and let him make his choice: there will of course be no necessity for his stating to the customer the mode in which they can be executed; it is sufficient for him to be told that there are two styles of painting; one that will look well at first, but is not durable, the other where the colour will last nearly as long as the furniture itself. Of course the painter who takes the money for painting chairs, or any thing else, in oil, and executes them in distemper, can have no claim to the character of an honest man or a fair tradesman.

The imitation of rose wood in oil, required for chairs, is very easy. The ground is red, and should be painted twice over: the black grain is lamp black ground in dryers, with a little boiled oil; this must be put on the red with the flat brush. Knots or large veins may be taken out with the leather. When the whole is dry, let it be varnished with copal varnish, and the chairs will look more brilliant than the common specimens of the real wool.

Chairs, tables, backs of sofas, bookcases, &c. painted to imitate rose wood, are frequently decorated with gilding, to imitate inlaid brass; where this is to be performed, the gilding should be executed before the work is varnished, and when the paint is quite dry and hard. The pattern should always be as simple as can be procured, avoiding straight lines as much as possible, particularly if the painter has not had great practice on inferior work, as nothing looks so bad as a ragged and unequal line in gilding, seeing that it is to imitate a metal that, from its nature, cannot have that appearance.

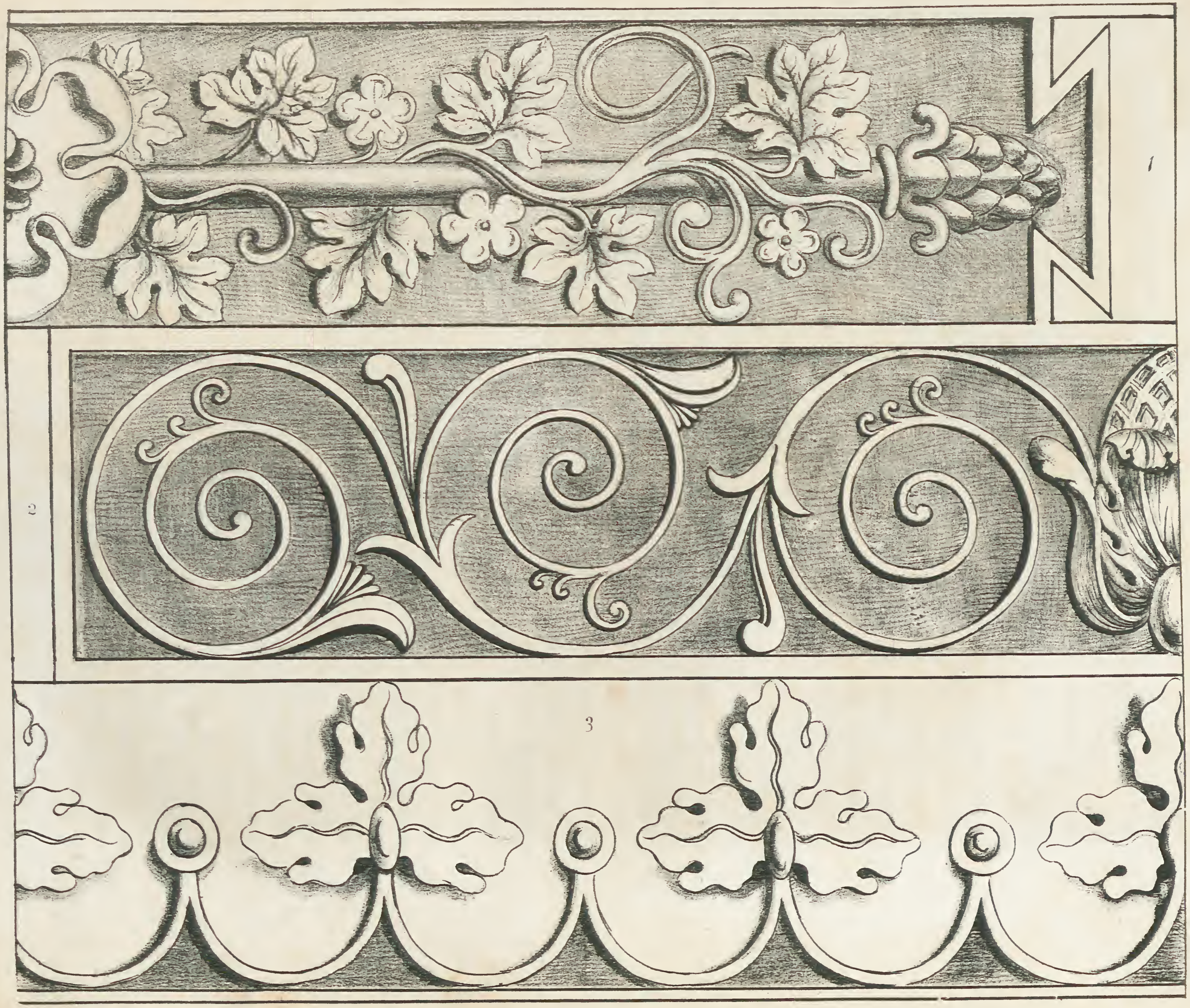
By referring to Plate XXVII. the learner will find a number of elegant, yet easy ornaments, which he may use for gilding on rose wood, or any other dark coloured wood. They should be carefully traced from the book upon transparent tracing paper; and as the person who undertakes decorative painting without a knowledge of drawing, can do nothing without a good tracing paper, the following easy and efficient mode of making it (for which the inventor received a medal and premium from the Royal Society,) will be of the greatest service:—Mix an equal quantity of spirits of turpentine and mastich varnish, shake them well together, and pouring some of the mixture in a cup, take a clean hog's-hair tool, and spread it thinly over whole sheets of double-crown tissue paper, hang them up to dry for a day or two, and the paper will be fit for use. This can be made more transparent by letting the mastich varnish preponderate, but the paper will not be so pleasant to trace upon. The paper prepared in this way is sold commonly in the shops at a shilling per sheet. Place a strip of this paper upon the drawing, and trace the outlines with great care; then having some thin paper rubbed over with dry soft red chalk, or venetian red, place that between the tracing and the wood, and go over the lines traced with great care with a hard black-lead pencil, or with a common glass point. On taking the paper away the pattern will be found drawn accurately on the wood.

In Plate XXIII. will be found three new patterns for chairs, which almost any painter may imitate by tracing. If the chairs are painted in distemper, or what is usually called japanned, it will be necessary to varnish them, and let the varnish be quite hard before the pattern is applied.

The pattern Fig. 1. is the hop-pole: it looks difficult to execute, but will be found easy from the absence of all straight lines and regular figures; thus, if by accident a leaf is made a little too large, or the hop

CHAIR PAINTING.

Plate XXIII.



bine winds a little contrary to the pattern, the work is not spoiled. The camel-hair pencils used should be middling-sized, with long handles.

In proceeding to paint from this pattern it will look very well if painted in green on a light drab ground. The colours that will be required on the palette are a light green, formed with king's yellow and prussian blue; a little black, and a little king's yellow, mixed with white. In painting commence with the green, and cover the whole space to be painted on according to the outlines of the pattern. When this is done take another brush for the black, and with this colour draw all the dark lines that form the shade; then with a third brush make touches of light in different parts, with the king's yellow and white. This may be all done while the green is wet, and it will look much softer than it would if the green were allowed to dry before the shading colours were applied. Of course it is not necessary that this pattern should be done only in green; it will look well in any colour that is properly contrasted with the ground.

Fig. 2. is the volute pattern, which must first be traced on the work as before directed. This, from the regularity of the lines, is rather more difficult than Fig. 1. Supposing this to be painted in light blue on a drab ground, proceed as follows:—Prepare the prussian blue and white to the proper tint required; take a little of this on the palette, with a little black and white; keep the colours apart from each other. Take a long-haired camel-hair or sable pencil, and with the light blue draw the whole of the pattern, taking care to have plenty of colour in the brush, so that it may not have to be taken off till the whole of the volutes on one side are painted. This will be found much easier to paint if the back of the chair is laid flat on a board, as the colour will flow more freely from the brush if it is held directly over the work. The painter will find no difficulty in following the lines, if he lets his arm rest upon a stick, and gives full play to his wrist and fingers, taking care to hold the brush at as great a distance from the point as he conveniently can, as the greater length of handle there is between his fingers and the point of the brush the larger sweep he can take, and the circular lines will be cut with greater freedom and correctness. When the blue is painted, take another brush, with black, and form the shadows according to pattern; and with this colour any little deviation from the line of the pattern that was made, while putting on the blue, may be corrected. With the white make the light touches where required. This pattern will be found much easier than straight lines that require to be kept exactly of the same size.

Either of these patterns will only require to be enclosed in a thin black line: the best way of forming it will be to let the little finger touch the edge of the chair, so that the line may be kept at an equal distance from it wherever it is drawn. Let the brush be well filled with colour, and draw the line with freedom and decision, rather quickly, as nothing looks so bad as an uneven black line.

The writer of this work has tried with success a method of ruling black lines, both in distemper and oil, with a reed pen. The reed should be as large as those used in the pandean pipes, and cut in the shape of a common pen, with a broad or sharp nib, according to the thickness of the line required. Instead of dipping the pen in the colour, fill it with a brush; then laying a straight edge on the work, with paper at each end to keep the rule from the wet colour, draw the line in the same way you would draw it on paper: the pen can only be used where the work lies flat. This plan is not recommended in preference to the brush, and is only mentioned that some expert workmen may improve upon the idea, and find some better method than is at present known for drawing lines in oil colour.

Fig. 3. is a very easy pattern, called the gothic pattern. After the directions given on the two preceding subjects, the painter will have no difficulty in producing this in any colour required.

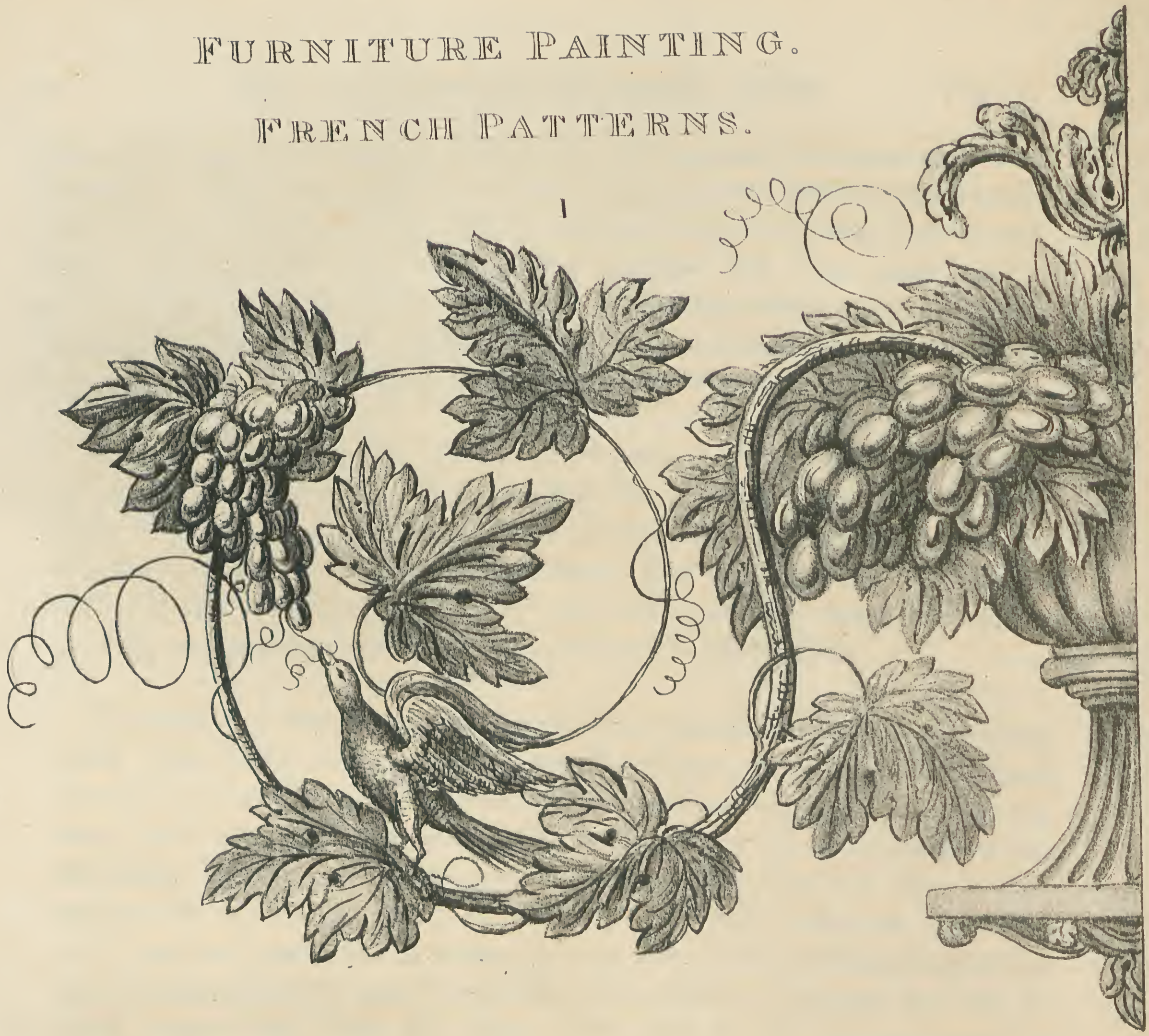
It would swell this work much beyond the purposed limit, if a greater number of patterns were given for chairs and other subjects. The three given will be sufficient for practice; and the workman will find a variety of patterns suited to his purpose from the ornamental borders

Plate XXIV.

FURNITURE PAINTING.

FRENCH PATTERNS.

1



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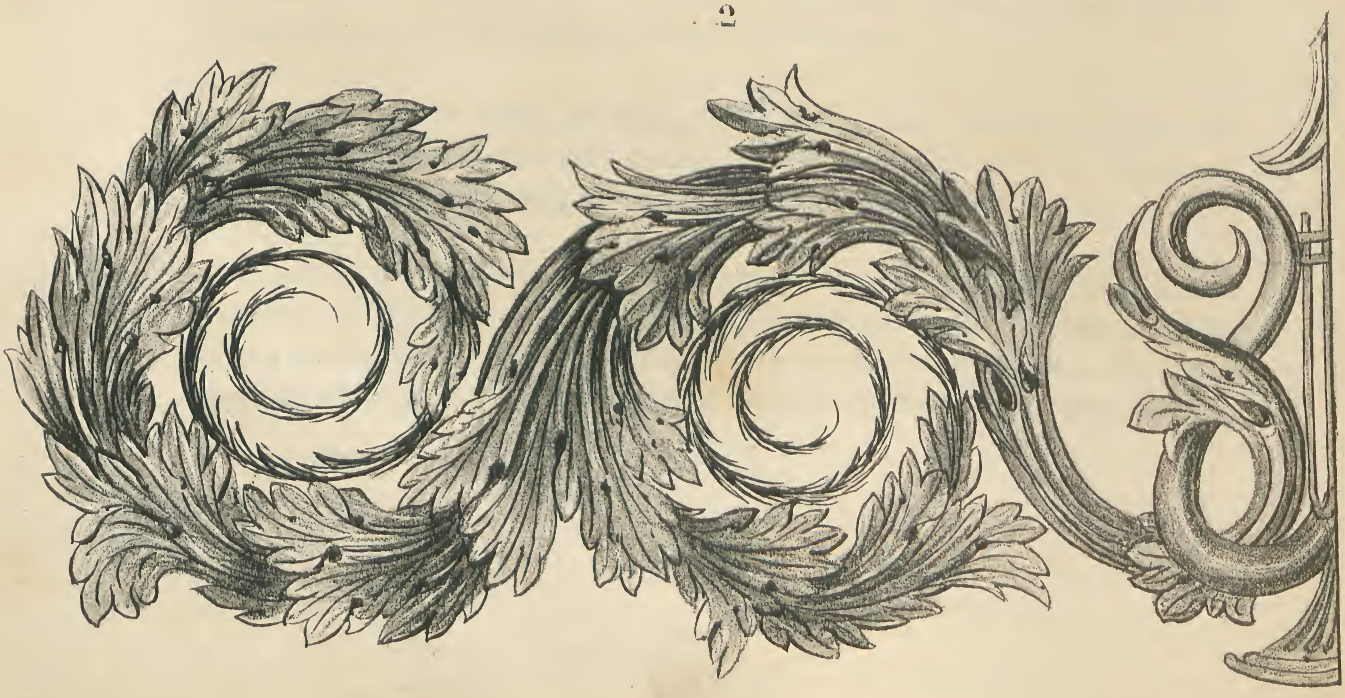


at the paper hangers'; all he will have to do is to combine them to make them suitable for chairs, cornices, &c. which he will have no difficulty in doing by means of the tracing paper; but it is advisable, in all cases, for the workman that cannot draw to avoid introducing natural objects, such as roses, tulips, flowers, or fruit of any kind; animals, &c.; as nothing looks so bad as such subjects ill represented; and every person that looks upon them is capable of forming a judgment upon their correctness: whereas, if the painter confines himself to easy subjects, where the lines are graceful and the ornaments tastefully disposed, without representing any definite subject in nature, they will always please from their lightness and variety, and not be so open to general criticism. Another rule should be attended to in forming patterns; that is, always to have the largest object in the centre, and let the pattern branch from it.

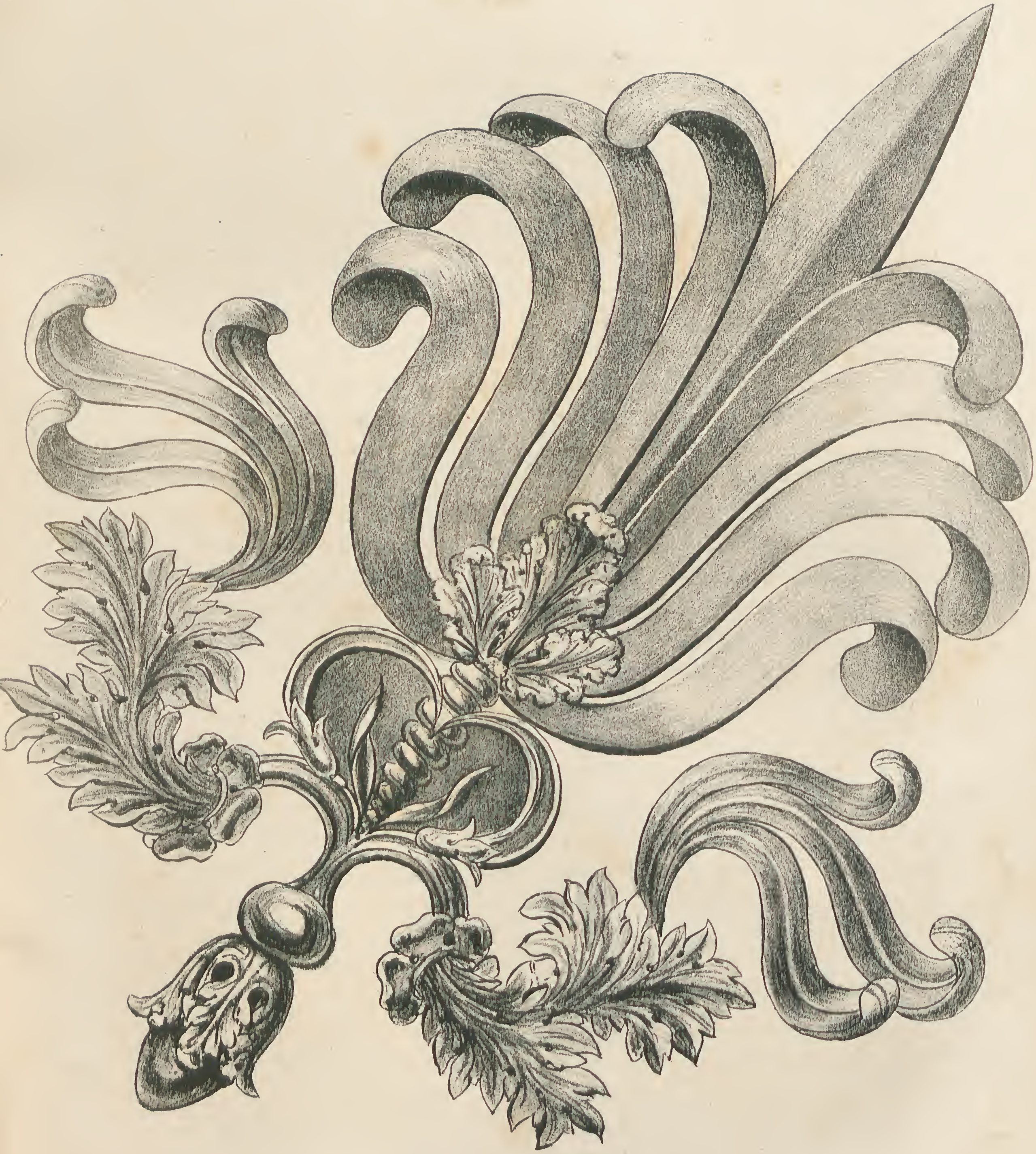
In painting chairs it is sometimes the practice to marble them; nothing can be in worse taste, as no imitation should ever be introduced where the reality could not be applied if persons chose to go to the expense—and who would choose a marble chair? Chairs may be painted in imitation of any fancy wood; and if chair-makers were to turn their attention to forming library, hall, and passage chairs of common wood, and have them painted in imitation of finely-grained oak, and in some cases ornamented with proper gothic designs, they would, from their lightness, elegance, and durability, supersede almost every kind of chair now in use.

Plate XXIV. Fig. 1. is copied from the centre of a very elegant French bedstead, and is introduced here to shew how beautifully natural objects may be grouped to form centre ornaments; and to shew likewise how impossible it would be for a person who cannot draw to represent such an ornament with correctness. No mechanical following the pattern would answer the purpose, and if it did come something near it, the time it would take would render the work too expensive to be of service. This subject will be mentioned again in the chapter on drawing.

Fig. 2. is a proper subject for the painter that cannot draw: here every line may be traced, and if a slight deviation is made, it is of no consequence so long as the general effect is produced. This forms a handsome ornament, either in colour or gilding, for the back of a sofa.

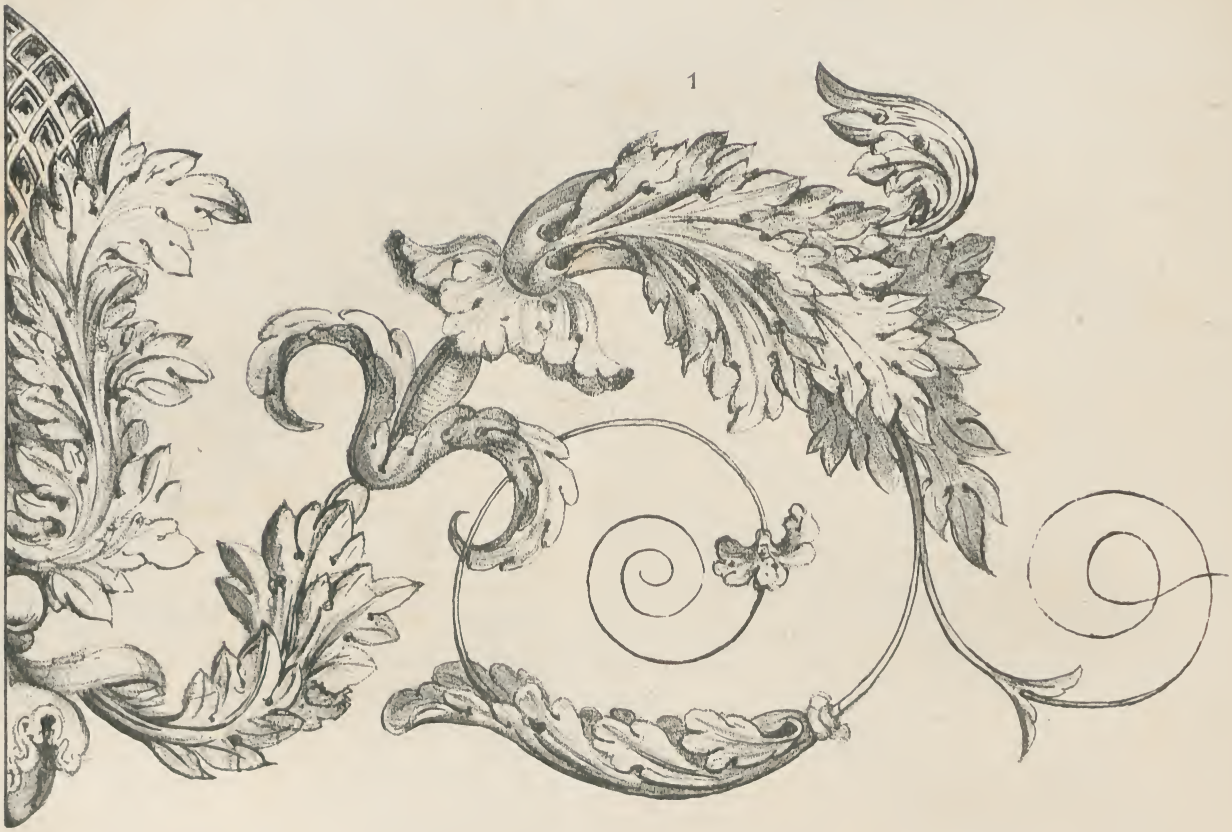
Plate XXV. is an angle ornament from one of the excavated rooms at Pompeii. It is here given the same size as the original, and is of course too large to use in furniture painting, except it is used as a centre piece: but it will be a handsome ornament for the corners of French bedsteads, the panels of doors, &c. if reduced to exactly half the size. This will easily be effected by dividing the ornament with the compasses, and drawing only one half of it on the tracing paper; draw every part as correctly as possible, and afterwards ink the outlines, taking care to fold the paper you are drawing upon exactly in half, so that the fold of the paper touches the points at the top and bottom of the ornament; then by turning the paper you will see the lines already drawn quite plain through the tracing paper: go over them very carefully with the pen, and both sides will of course be exactly alike; then open the fold of the paper, and the ornament will be found perfect. A little practice in this way will enable an ingenious painter, who has not previously learned to draw, to invent a number of patterns for himself which will be highly useful for many purposes.

If this ornament is used as a centre piece, the first thing the workman will have to do is to find the proper place for placing the ornament on the work. The easiest way is to measure the width of the board at the bottom with a piece of string, which, if doubled in together so that the two ends meet, will of course give exactly half the size of the board; mark this distance with a pencil, the slightest dot will be sufficient for the purpose. Proceed in the same way to find the centre of the height of the board, marking it in the same way. Then placing the straight edge on the points marked, draw a very slight line with the pencil, about a foot long, as near the middle of the board as you can; then placing the straight edge on the points at the top and bottom of the board, draw another line directly across the first: where these two



Angle Ornament from Pompeii.

1



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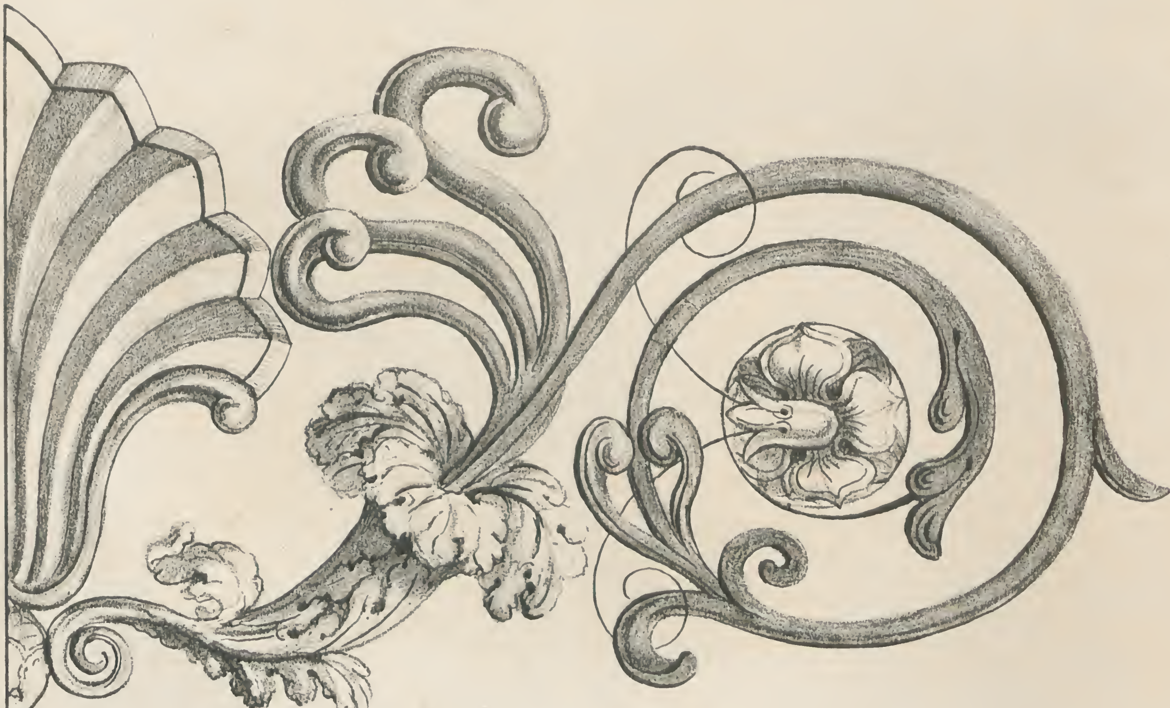


Furniture Painting. Arabesque Ornament.

lines intersect or cross each other, is exactly the centre of the board: then place the tracing of the ornament so that the point at the top and bottom of the figure comes exactly on the upright line on the board, and that the line that crosses it touches the top of the branching ornaments. The painter will then be sure that the figure is in the centre, and that it is quite upright. The thin paper, rubbed over with red chalk, may then be placed underneath the tracing, and the outline marked with the point as directed in the patterns for chairs. More attention has been given to the method of obtaining the true centre of the board than the subject may seem to require to those who are acquainted with the mathematical process for obtaining the same object; but the author again repeats that he is writing for learners, and that things which to some appear quite easy, are to others very difficult.

There are other methods of finding the centre of the panels, &c. which will be shewn in the proper place; the one here pointed out is the easiest, and will answer for every subject in furniture painting.

Plate XXIV. contains two handsome centre pieces for bedsteads, backs of sofas, panels, &c.; only one side is given of each, as that will be quite sufficient in all patterns, as by turning the paper and placing it on the upright line, as the pattern appears in this example, both sides may be drawn with the certainty of their being alike, as they are drawn from one pattern. After the instructions given in painting the three patterns in Plate XXIII. but little can be added here. Care must be taken to form the points of the leaves with a broad touch of the sable pencil, commencing with the point at the outside, and gradually bearing on the brush to spread the hairs as it comes towards the centre of the leaf. In putting on the first colour (which is always that which the body of the figure is to appear) care need only be taken to preserve the outline; the fibres of the leaves are formed with the shading colour, and the bright lights with the first colour mixed with white. It will require some practice in handling the brush to draw out the fine volutes; but if a fine pointed sable pencil is used, well filled with colour, it will soon be attained, particularly if the utmost freedom is allowed to the hand, and if only sufficient pressure is made on the handle of the pencil to keep it from slipping from the fingers, as it is impossible to make a fine flowing line, if the fingers are at all cramped. When the centre pieces are drawn proceed to form the lines round it, as before directed.

The beginner will find the lining of the work the most difficult task he has to encounter, particularly if the lines are fine. In this case, the reed pen will be found a great advantage, or if done by the general method of guiding the camel-hair pencil, by pressing the little finger to the edge of the work, and keeping the other fingers extended equally the whole length of the line. If the line is at a great distance from the edge of the work the straight edge may be placed near it as a guide for the finger; it can be kept from moving by the other hand. For light grounds the lines must of course be dark, in general black, and this colour is so thin that it will run with greater freedom than any other. For dark grounds, such as pollard oak, rose or coral wood, white lines on common furniture have a good effect.

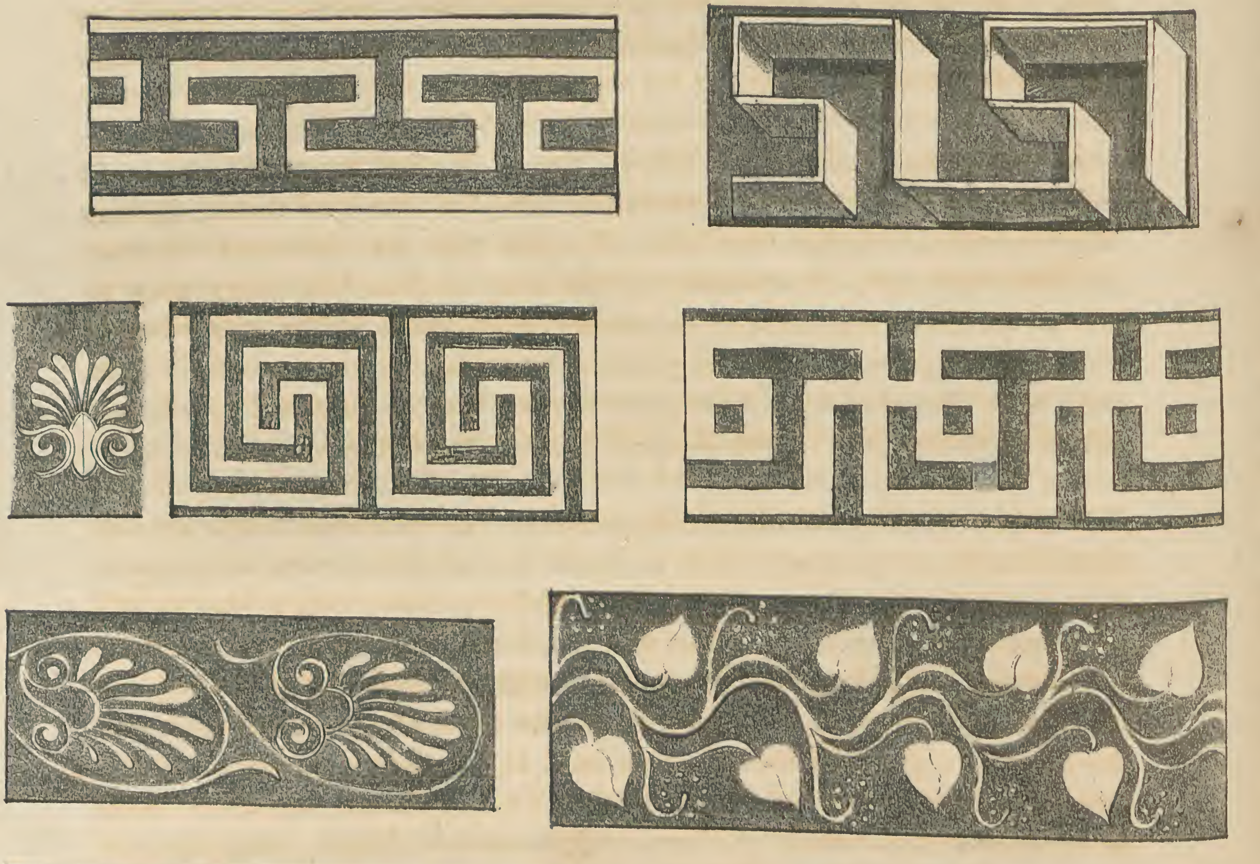
The tops of wash-hand stands are usually painted in imitation of dove, or white-veined marble, the drawers and legs rose wood, ornamented with white; but the most beautiful ornament for dark-coloured wood is gold.

The mode of drawing ornaments on dark ground is the same as on the light, except that in some cases the red chalk is too near the colour of the ground to be distinguished from it. When this happens a very thin coating of pipe clay, diluted with water, may be spread on the paper, which, when dry, will answer the purpose as well as red chalk. If the work is to be gilt, the pattern must be very carefully drawn upon it with japanner's gold size. This may be procured properly prepared at any colour shop; and as it is best prepared in large quantities, it is scarcely worth the painter's while to be at the trouble of making it. This size is composed of linseed oil, boiled with gum animi: if, when purchased, it is found too thick to flow freely from the pencil, it may be diluted with oil of turpentine. Any of the patterns may be drawn with gold size, and after the gold is laid on, may be shaded with vandyke brown, or if the leaves are to assume a green

GREEK AND ROMAN ORNAMENTS

Gilding on Rosewood &c.

Plate XXVII.



hue, with prussian blue; but in general, where gilding is applied to rose wood, it is required to imitate inlaid brass as nearly as possible: it then wants no shading.

By referring to Plate XXVII. a variety of patterns will be seen fit for this work, which is particularly adapted for bookcases, library tables, desks, or backs of sofas. The patterns here selected are most of them very easy to execute, though they appear full; they may be traced on either the painted or stained rose wood, in the way directed in page 74. The lines of the pattern must then be very carefully gone over with the gold size, taking great care that it does not touch any part of the work but where the gold is to be applied.

In order to execute this work properly, the workman must provide himself with a cushion. This is made by covering a small piece of board, about ten inches square, with leather; some cotton wool should be placed between the leather and the wood to form a thin stuffing; the leather is then nailed down all round the sides of the wood. A piece of leather should be nailed on the back of the cushion, so that the thumb may pass through it to hold the cushion by, and a border, formed of pasteboard, about three inches high, should be nailed round three sides of the cushion, to prevent the current of air blowing the gold from it. It will likewise be necessary to make or procure a sort of brush, called by gilders a tip: it is made by putting squirrel or badger's hair, very thinly, between two cards, and afterwards glueing them together; this is used to take the gold from the cushion after the leaf is cut to the size required with a small palette knife.

The proper gold leaf for this purpose is the pale virgin gold: this, when varnished, assumes a greenish hue, and looks very like inlaid brass. If a leaf or two at a time of this gold is spread on the cushion (which requires a little knack in doing, but will easily be obtained by practice), it must be cut to the size fit for the work, and then, taking the tip, gilders generally pass the end of it over their hair: by this means, it imbibes a small portion of oily moisture, and causes the gold to adhere to the hairs; and takes off any of the gold that is left in the tip after it has conveyed the gold leaf to the work. When the leaf is properly placed, it should be lightly pressed by a dabber, made by enclosing a quantity of cotton wool in a piece of white persian, done up like a ball, but very soft. The gold should be suffered to lie on the work, without brushing off the loose pieces where there is no size for it to adhere to, till the size under the gold has become hard; it may then be brushed off with the hog's-hair softener, and the pattern will be left perfectly clear on the furniture.

As the painter will in some cases be required to gild the capitals and bases of columns and other work, which the japanner's gold size is not fit for, it being too thin and drying too fast, the mode of gilding in oil is added in this place; and though it is properly speaking the work of the gilder, yet the painter will in many cases find it pleasing and profitable to be able to execute it himself. The process is as follows:—Take good boiled oil three parts, and japanner's gold size one part; mix these with some yellow ochre, well ground in boiled oil: the ochre, when mixed with the boiled oil and gold size, must be sufficiently opaque to give colour to any thing that is touched with it. The work to be gilt should be well covered with this mixture, and suffered to get quite dry. The whole should then be brushed over again with the mixture, taking care that it is laid on very evenly and thinly over the whole surface. This should be allowed to stand till the size is what the gilders call tachy; that is, when it adheres to the finger, in a slight degree, when touched, but is not so wet as to be brought off the work: it is then in a fit state to receive the gold leaf, which must be spread over the whole surface with the tip used as before directed.

If the subject to be gilt is large, the leaves are put on whole; but, if required, are cut into strips on the cushion: the gold may then be lightly pressed to the size with the dabber, and suffered to get dry before the loose gold is brushed off. When this is done, should any part of the work appear without gold, the part must be carefully touched with a little of the japanner's gold size, and a small piece of the leaf applied where it is required.

For shading on this gilding, after it is dry, use the transparent colours according to the tint required. Prussian blue makes a most beautiful green tint; burnt sienna and lake form a fine warm shade; and for the darker parts vandyke brown.

A common gold size, for inferior work, may be made by grinding red lead with the thickest drying oil that can be procured. If any great quantity of this is ground together, it will be too thick to use unless diluted with a little turpentine. This size will be sufficiently dry in a few hours to allow the gold to be applied.

In scenic decoration, Dutch metal is used instead of gold leaf. Common glue is the best size for this metal; it should be suffered to get nearly cold before the metal is applied.

VARNISHING.

Oil and spirit varnishes take their names from a variety of resinous gums, some of which can be dissolved in oil, and are therefore called oil varnish; and others only in spirits of wine, and are from this distinguished by the name of spirit varnish. Like most other articles used by the decorative painter, varnishes can generally be procured cheaper from the regular manufacturers than when made in small quantities for the use of an individual: but it is always better for the painter to be aware of the ingredients that compose the varnish proper for different kinds of work, so that he may be enabled to ascertain its quality, and know how to apply it with effect.

LINSEED OIL VARNISH.

The gums dissolved in oil are, for most purposes, to be preferred to those prepared in spirits of wine, as they are not so liable to crack after being laid on the work, and are likewise more durable, affording the most resistance to wet; they are therefore always to be preferred for out-door work painted in oil. The most simple preparation in oil is the following:—Boil four pounds of linseed oil in an iron pot for about an hour; at the end of this time, put in a thick round of bread from a quartern loaf, cutting off the crust; the bread will in a little time, if the oil is kept boiling, absorb nearly all the dross and fat. After the bread has been in the oil about a quarter of an hour, take it out with a fork, and have ready a pound of good clear resin, finely powdered: this must be added to the oil a little at a time, taking care to keep the mixture well stirred with an iron spoon. When the resin is quite dissolved, add four ounces of spirits of turpentine, or more if the varnish is too thick. Stir the whole together, and strain it into a wide-mouthed jar, and when cool it will be fit for use.

This is the proper varnish for out-door work, and for work that requires frequent cleansing, as it will not be injured by hot water.

TURPENTINE VARNISH.

To a gallon of oil of turpentine add four pounds of good resin, well powdered; boil them together till the resin is dissolved, keeping the mixture stirring: when cool it is fit for use.

This varnish may be applied to any out-door or common work in distemper, as the oil of turpentine quickly exhales in the air; it will not sink into the work more than a spirit varnish would, is much cheaper and more durable: of course it will answer very well for common oil work.

SANDARAC VARNISH.

Perhaps the most generally useful varnish that can be made, from its limpidness and brilliancy, may be produced by mixing to four pounds of linseed drying oil two pounds of gum sandarac and a quarter of a pound of oil of turpentine. This mixture must boil till the gum sandarac is dissolved.

This will be found an excellent varnish for every kind of work painted in oil.

COPAL VARNISH.

Take two ounces of essential oil of lavender, and put it into any common tin vessel; this must be placed in an iron pot, the bottom and sides of which should be filled up with sand, as described under the head of spirit varnishes. (In old books on chemistry this is called a sand bath, and the vessel that contains the articles to be heated is called the mattress.) When the oil of lavender has become quite hot, put to it two ounces of well powdered gum copal: this must be added to the oil in small quantities at a time, and the mixture must be kept stirred; when the whole of the copal is quite dissolved, add six ounces of oil of turpentine: this should be previously made nearly boiling hot; put in the turpentine a little at a time, keeping it stirred till the whole is well mixed together; then put it into a jar, and when cold it is ready for use.

This, from its colour, is called gold-coloured copal; but if it is wanted for any purpose where its yellow colour would be objectionable, it will be necessary to substitute the highly rectified spirits of turpentine for the turpentine that is usually sold in the shops.

AMBER VARNISH.

Put half a pint of the best spirits of turpentine into a vessel that will hold a quart; add to the turpentine eight ounces of finely powdered amber; place the vessel over the fire till the amber is quite melted, then add to it two ounces of powdered gum lac; keep it on the fire, stirring it well, till the mixture is dissolved; then add to the whole an ounce of clear cold-drawn linseed oil: stir it well together, and when cold it is fit for use.

This varnish, as well as copal, may be prepared in a variety of ways. Some prefer a greater quantity of linseed oil and less turpentine, and others the contrary; but the proportions here given will be found to produce an excellent varnish. Amber varnish used to be in great request a few years back, and was preferred to almost any other for varnishing fancy woods, &c. where its dark colour did not injure the tints; but since the easy preparation of copal, and the little colour it contains in comparison to amber, the latter is now very little used; indeed, so excellent is the resinous quality of copal, that it is now preferred for the finest as well as the more common works, and is as applicable to metal as to wood. A number of different preparations, both of copal and amber, might be given; but, as they would be of no service to the painter, they are purposely omitted.

MASTIC VARNISH.

Put one pound of the best gum mastic into a quart of spirits of turpentine; put this into the small vessel first, and then into the large vessel, containing the sand. Let the mixture continue over the fire till quite dissolved, then strain it through a fine sieve, and when cold it is fit for use. Should it at any time become too thick, it can be diluted with a small quantity of spirits of turpentine. An ounce of camphor is in some cases added to the above mixture; it makes the mastic dissolve with more rapidity.

Mastic varnish is generally used for varnishing pictures and drawings.

MORDANTS.

In the old style of gilding and varnishing, mordants were of use where the body of colour was not sufficiently strong to prevent the varnish from being absorbed by the wood; consequently, it was necessary to make the parts that were most likely to affect the varnish, bear out, as it was called, by applying a mordant; but this practice is properly disused at the present time, and mordants are now only used for forming a ground for gold leaf, or rather for the japanner's gold size, so that it may lie evenly on the work, and be of equal strength over the whole surface to be gilt: indeed, mordants are a gold size, and the leaf ought to adhere to them without the application of any other. One of the best (for they formerly were thought very highly of, and a variety of compositions were made use of) is the following:—Dissolve one ounce of gum mastic, one ounce of gum sandarac, half an ounce of gamboge, and a quarter of an ounce of turpentine, in six ounces of spirits of turpentine.

One of the most simple mordants is that procured by dissolving a little honey in thick glue. It has the effect of greatly heightening the colour of the gold, and the leaf adheres to it extremely well.

SPIRIT VARNISHES.

These are formed, as before observed, by the solution of various resinous gums in rectified spirits of wine, and in all cases it is of the utmost importance to the formation of varnish that the spirits of wine is free from adulteration. The easiest test which a painter can apply to ascertain its quality, is by pouring a small quantity into a cup, and setting it on fire; then, dipping a finger into the blazing liquid, if on taking it out the spirit quickly burns away, without burning the fingers, it is good; but if the flame continues so long that it causes the fingers to smart, the spirit has been debased by being mixed with some of an inferior quality, and should be rejected as unfit for making varnish. If two samples of spirits of wine are offered, containing exactly the same quantity, weigh them, and the lightest will be found most pure.

In order to have the varnish perfectly white, clear, and transparent, the quality of the gums is of importance, taking care to choose those which are quite free from particles of dirt, and are transparent when held up to the light.

It would be endless to state all the variety of mixtures of the different ingredients which have been recommended by painters and varnishers for the formation of different kinds of spirit varnish; those that are annexed are the varnishes that are in general use, and have been carefully prepared, purposely for this work, and can therefore be recommended with confidence. The smallest quantity of the spirit, and the various gums that can be used are given, in order that it may be useful to the painter who may wish only to prepare the varnishes to use in his own business, but any quantity can be made by observing the same proportions.

It will be necessary to use great caution in the preparation of varnishes, as it is in some cases necessary to employ a great degree of heat to dissolve the gums; and, as the spirits or oil, when hot, so easily take fire, it will be proper to guard against accidents by using what is called a sand-bath; that is, to place the vessel containing the spirit in a larger vessel, in which a layer of sand, two inches thick, is strewed over the bottom; on this place the vessel containing the varnish, and fill up the space left between the two, round the sides, with sand: the sand will by this means convey the heat to the liquid without the fire getting near it: but should it by accident catch, do not take it off the fire, but always have ready a cover to the vessel and a damp cloth; when it takes fire put on the cover, and prevent any air from coming to the mixture by putting the damp cloth round it, and it will instantly extinguish the flame. Never pour water upon it, as that will only make it burn with more fierceness, and also cause the liquid to overflow the vessel and run into the fire, which would of course increase the danger. When varnish is prepared in large quantities, the person attending the iron pot should have his hands covered with thick leather gloves, made rather damp, he will then be able to stop the blazing of the spirits or oil without injury to himself.

WHITE HARD VARNISH.

To one gallon of spirits of wine add three pounds of gum sandarac, and four ounces of gum animi; let the gums be finely powdered and added to the spirits a little at a time, keeping it stirred till the whole is mixed together. This is usually placed in a two-gallon can, and deposited in a warm place for a day or two, till the whole of the gum is dissolved, shaking the can frequently to quicken the solution; then strain the mixture through a lawn sieve, and it is fit for use.

This is the varnish used for furniture painted in distemper; it must be put on thin, or it is liable to crack: it dries very quickly, but should be used in a warm room, and the subject to be varnished must be quite dry, otherwise it will chill and spoil the work.

In large manufactories it is usual to have two or three cans hanging up near the fire, and all the preparation that is used for the varnish is to put powdered gum sandarac to the spirits of wine, in the proportion of three pounds of gum to a gallon of spirit. This, if shaken once or twice a day, will quite dissolve in a week; and for common work it may be used without the trouble of straining, as the dross, if any, sinks to the bottom of the vessel.

COPAL VARNISH.

This varnish is the most useful for general purposes, as it is not so liable to crack, and is so hard when dry that it will bear the highest polish. The fine imitations of fancy wood should be varnished with copal dissolved in spirits, if they are not exposed to the weather, and in oil of turpentine if they are.

This varnish is made as follows:—To one gallon of spirits of wine add six ounces of gum copal and two ounces of shell-lac. Put this mixture in a can or jar, which must stand in a warm place; shake the mixture together once or twice a day till the gum is dissolved, then strain the varnish through a fine sieve, and it is fit for use.

The above is the easiest and most usual way of preparing copal varnish, but there are a number of mixtures of copal with other gums, according to the colour or strength required.

MASTIC SPIRIT VARNISH.

To a gallon of spirits of wine put twelve ounces of pounded gum mastic, and one ounce of shell-lac; put them all together in a tin can, and keep it in a very warm place, shaking it frequently till the whole is dissolved. If it is too thick, add a little more spirits of wine.

This is a good varnish for any dark wood, or the imitation of it in distemper.

SHELL-LAC VARNISH.

Take of the best shell-lac five ounces, pounded finely, and put it into a bottle or can that will hold two quarts; add to it one quart of rectified spirits of wine, and place the bottle in a gentle heat, where it should continue for two or three days, taking care to shake it frequently; the shell-lac will then be dissolved, and the varnish should be filtered through a flannel bag. The varnish, when strained, is fit for use.

TAR VARNISH.

This is a very cheap but durable varnish for very common work, such as gates, pales, or other work exposed to the weather. It is made by grinding tar and spanish brown together to the proper consistence, so that it may be laid on with a large brush.

JAPANNING, POLISHING, &c.

Colours for painting on japan work are prepared in varnish, and as japanning is now again becoming very fashionable, the process of performing it is added from an old work on japanning, published in the reign of James the Second, containing the true methods of producing the splendid ornaments on the old japanned furniture which now obtains such high prices, from the supposition that the art is lost from disuse. It will likewise be very useful for the information it contains on the method of applying and polishing the various varnishes, whether on japanned grounds, or on common painting either in oil or distemper. To the coach-painter, and others employed on polished works, the hints it contains will be particularly valuable.

"By japanning is to be here understood the art of covering bodies by grounds of opaque colours in varnish, which may be either afterwards decorated by painting or gilding, or left in a plain state, as it is now practised for the ornamenting of cabinet-screens and other furniture, and in which there is a rivalship between the English and the French; which renders the propagation of this art of great importance to commerce. I shall therefore be more explicit in shewing the methods both now and formerly in use, with the application of each to the several purposes to which they are best adapted, and point out at the same time several material improvements that are at present only known to the very highest japanners, or not at all brought into practice in England.

"The substances which admit of being japanned are almost every kind that are dry and rigid, or not too flexible, as wood, metals, leather, &c.

"Woods do not require any other preparation than to have their surfaces perfectly clean and even. One principal variation in the manner of japanning is the using or omitting any priming or undercoat on the work to be japanned. In the old practice, such priming was always used, and is at present retained in the French manner of japanning coaches and snuff-boxes of the papier maché, but here it has always been rejected. The advantage of using such priming is, that it makes a saving in the varnish used; because the matter of which the priming is composed fills up the inequalities of the body to be varnished, and makes it easy by means of rubbing and water-polishing to gain an even surface for the varnish. This was, therefore, such a convenience in the case of wood, as the giving a hardness and firmness to the ground was also the case in leather, that it became an established method, and is therefore retained by the French. There is, nevertheless, this inconvenience always attending the use of any undercoat of size, that the japan coats of varnish and colour will be constantly liable to be cracked and peeled off by any violence, and will not endure near so long as the bodies japanned in the same way without any such priming. This may be easily perceived by the difference of wear in the French and

English articles; the advantage being greatly on the side of the latter.

"The laying on the colour varnish, instead of gum-water, is also another variation from the method of japanning formerly practised: the much greater strength of the work, where the colour is laid on in varnish or oil, has occasioned this way to be exploded, with the greatest propriety, in all regular manufactories. However, those who practise japannings on cabinets, or other pieces as are not exposed much to wear or violence, for their amusement only, and consequently may not find it worth their while to encumber themselves with the preparations necessary for the other methods, may paint with water colours on an undercoat laid on the wood, and then finish with the proper coats of varnish, according to the following methods :—

OF JAPANNING GROUNDS.

"The proper japan grounds are either such as are formed by the varnish or colour, where the whole is to remain of one simple colour, or by the varnish, either coloured or not, on which some painting or other decoration is afterwards to be laid. It is necessary to mention the manner of laying on the undercoat or priming where any such is used."

Here follows a long description of the various sizes with which whiting can be mixed, to form a clear coating, as it is commonly called, recommending the use of the size procured by boiling white leather or shreds of parchment. There is little necessity for describing this part of the process of japanning, as priming with size is well known to every house-painter at the present time.

"After the work has been well brushed over twice with hot size, the priming should be laid on as even as possible. If the surface is very even on which the priming is used, two coats of it laid on in this manner will be sufficient; but if on trial it will not bear water on its surface evenly without absorbing it in parts, so that there appears a sort of polish or gloss upon it in some places, and none in others, another coating must be given to it; and whether a greater or less number of coats are given, the work must be smoothed after it is dry by rubbing it with Dutch rushes or the finest sand paper. When this is done, a water polish should be given to it by passing over every part of it with a fine rag, gently moistened, till the whole appears perfectly plain and even. The ground for receiving the painting or coloured varnish will then be complete, the rest of the proceedings being the same as if no priming was used."

As the work in imitation of inlaid ebony and ivory is now so fashionable, and the process is in every respect similar to any other kind of japanning, it is mentioned in this place, as great inconvenience is felt by many painters from their not having the knowledge of the proper method of preparing the ground for ladies to paint upon, or of varnishing and polishing it after the painting is finished. After the board is cut the proper size and form required, take some hot size and brush it over two or three times, taking care to let it get quite dry between each coat of size: at the third coat, when dry, the board will be found, if held up to the light, to shine all over: it is then in a fit state to bear the first coat of the ground, which is formed of flake white, ground in weak size. This must be spread over the board very thinly, and then suffered to dry; all the roughness should then be removed by polishing the surface with the finest sand paper. A second and third coat of the flake white must then be spread very evenly over the board, and when dry, a piece of fine rag, dipped in water, should be drawn over the work to take off all unevenness of surface. When the white is quite dry it is fit to work upon. The pattern is drawn with lamp black mixed in size. The method of varnishing and polishing will be found under the head of Japan Varnishing and Polishing.

COMMON GROUNDS OF VARNISH, WHICH ARE TO BE PAINTED UPON.

Where wood or leather is to be japanned, and no priming is used, the best preparation is to lay two or three coats of coarse varnish composed in the following manner:—Take of rectified spirits of wine one pint, and of coarse seed-lac and resin each two ounces. Dissolve the seed-lac and resin in the spirit, and then strain off the varnish.

This varnish, as well as all others formed of spirits of wine, must be laid on in a warm place; and if it can be conveniently managed, the piece of work to be varnished should be made warm likewise; and for the same reason, all dampness should be avoided; for either cold or moisture chill this kind of varnish, and prevent its taking proper hold of the substance on which it is laid.

When the work is so prepared, by the priming with the composition of size and whiting above described, the proper japan ground must be laid on, which is much the best formed of shell-lac varnish, and the colour desired; if white be not in question, which demands a peculiar treatment, as I shall below explain, or great brightness be not required, when also other means must be pursued. The composition of the shell-lac varnish is given in page 90.

The colours used with the shell-lac varnish may be any pigments whatever which give the tint of the ground desired, and they may be mixed together to form browns or any compound colours; but, with respect to such as require peculiar methods for the producing them of the first degree of brightness, I shall particularize them hereafter.

As metals never require to be undercoated with whiting, they may be treated in the same manner as wood or leather when the undercoat is omitted, except in the instances afterwards treated of.

WHITE JAPAN GROUNDS.

The forming a ground perfectly white, and of the first degree of hardness, remains hitherto a desideratum, or matter sought for, in the art of japanning, as there are no substances which can be dissolved so as to form a very hard varnish, but what have too much colour not to injure the whiteness, when laid on of a due thickness over the work, except some very late discoveries which have not hitherto been brought into practice.

The nearest approach, however, to a perfect white varnish, by means already known to the public, is made by the following composition:— Take flake white, or white lead, washed over and ground up with a sixth of its weight of starch, and then dried, and temper it properly for spreading with the mastic varnish prepared as in page 89. Lay these on the body to be japanned, prepared either with or without the undercoat of whiting, in the manner as above ordered, and afterwards varnish it over with five or six coats of the following varnish:—

Provide any quantity of the best seed-lac, and pick out of it all the clearest and whitest grains, reserving the more coloured and fouler parts for the coarser varnishes, such as that above-mentioned, for priming or preparing wood or leather. Take of this picked seed-lac two ounces, and of gum animi three ounces, and dissolve them, being previously reduced to a gross powder, in about a quart of spirits of wine, and strain off the clear varnish.

The seed-lac will yet give a slight tinge to this composition, but cannot be omitted where the varnish is wanted to be hard; though, where a softer will answer the end, the proportion may be diminished, and a little crude turpentine added to the gum animi, to take off the brittleness.

A very good varnish, free entirely from all brittleness, may be formed by dissolving as much gum animi as the oil will take, in old nut or poppy oil, which must be made to boil gently when the gum is put into it. The ground of white colour itself may be laid on in this varnish, and then a coat or two of it may be put over the ground, but it must be well diluted with oil of turpentine when it is used. This, though free from brittleness, is, nevertheless, liable to suffer by being indented or bruised by any slight strokes, and it will not well bear any polish, but may be brought to a very smooth surface without, if it be judiciously managed in laying it on. It is likewise somewhat tedious in drying, and will require some time where several coats are laid on, as the last ought not to contain much oil of turpentine. It must be observed, likewise, that the gum-resin, such as the animi, copal, &c. can never be dissolved in substantial oils by the medium of heat, without a considerable change in the colour of the oils, by the degree of heat necessary to produce the solution.

BLUE JAPAN GROUNDS.

Blue japan grounds may be formed of bright prussian blue, or of verditer glazed over by prussian blue, or of smalt. The colour may be best mixed with shell-lac varnish, and brought to a polishing state by five or six coats of varnish of seed-lac; but the varnish, nevertheless, will somewhat injure the colour by giving to a true blue a cast of green, and fouling in some degree a warm blue by the yellow it contains. Where, therefore, a bright blue is required, and a less degree of hardness can be dispensed with, the method before directed, in the case of white grounds, must be pursued.

RED JAPAN GROUNDS.

For a scarlet japan ground vermilion may be used, but the vermilion alone has a glaring effect, that renders it much less beautiful than the crimson produced by glazing it over with a carmine or fine lake, or even with rose pink, which has a very good effect used for this purpose.

For a very bright crimson, nevertheless, instead of glazing with carmine, the indian lake, known in the shops by the name of safflower, should be used, dissolved in the spirit of which the varnish is compounded (which it readily admits of when good); but in this case, instead of glazing with the shell-lac varnish, the upper or polishing coats need only be used, as they will equally receive and convey the tinge of the indian lake, which may be actually dissolved by spirits of wine, and this will be found a much cheaper method than the using carmine. If, nevertheless, the highest degree of brightness be required, the white varnishes must be used.

"It is at present, however, very difficult to obtain this kind of lake, for it does not appear that more than one considerable quantity was ever brought over and put into the hands of colourmen, and this being now expended, they have not the means of a fresh supply; it, however, may be easily had from the same place whence the former quantity was procured, by any persons who go thither in the East India Company's ships.

YELLOW JAPAN GROUNDS.

"For bright yellow grounds, king's yellow, or turpeth mineral, should be employed, either alone or mixed with fine dutch pink. The effect may be still more heightened by dissolving powdered turmeric root in the spirit of wine, of which the upper or polishing coat is made, which spirit of wine must be strained from off the dregs, before the seed-lac be added to it to form the varnish.

"The seed-lac is not equally injurious here, and with greens, as in the case of other colours; because, being only tinged with a reddish yellow, it is little more than an addition to the force of the colours. Yellow grounds may be likewise formed of the dutch pink only, which, when good, will not be wanting in brightness, though extremely cheap.

GREEN JAPAN GROUNDS.

"Green grounds may be produced by mixing king's yellow and bright prussian blue, or rather turpeth mineral and prussian blue. A cheap, but fouler kind, may be had from verdigris, with a little of the above-mentioned yellows or dutch pink. But where a very bright green is wanted, the crystals of verdigris (called distilled verdigris) should be employed, and, to heighten the effect, they should be laid on a ground of leaf gold, which renders the colour extremely brilliant and pleasing. They may, any of them, be used successfully with good seed-lac varnish, for the reason before given, but will be still brighter with the white varnish.

ORANGE-COLOUR JAPAN GROUNDS.

"Orange-colour japan grounds may be formed by mixing vermilion, or red lead, with king's yellow, dutch pink, or orange lake: red orpiment will make a brighter orange ground than can be produced by any mixture.

PURPLE JAPAN GROUNDS.

"Purple japan grounds may be produced by the mixture of lake and prussian blue, or a fouler kind by vermilion and prussian blue. They may be treated as the rest with respect to the varnish.

BLACK JAPAN GROUNDS, TO BE PRODUCED WITHOUT HEAT.

"Black grounds may be performed by either ivory black or lamp black, but the former is preferable when it is perfectly good. These may be always laid on with the shell-lac varnish, and have their upper or polishing coats of common seed-lac varnish, as the tinge or foulness of the varnish can be here no injury.

COMMON BLACK JAPAN GROUNDS ON IRON OR COPPER, PRODUCED BY MEANS OF HEAT.

"For forming the common black japan grounds by means of heat, the piece of work to be japanned must be painted over with drying oil; and when it is of a moderate dryness, must be put into a stove of such degree of heat as will change the oil black, without burning it so as to destroy or weaken its tenacity. The stove should not be too hot when the work is put into it, nor the heat increased too fast, either of which errors would make it blister; but the slower the heat is augmented, and the longer it is continued, provided it be restrained within the due degree, the harder will be the coat of japan. This kind of varnish requires no polish, having received, when properly managed, a sufficient one from the heat.

THE FINE TORTOISE-SHELL JAPAN GROUND, PRODUCED BY MEANS OF HEAT.

"The best kind of tortoise-shell ground produced by heat is not less valuable for its great hardness, and enduring to be made hotter than boiling water without damage, than for its beautiful appearance. It is to be made by means of a varnish prepared in the following manner:—Take of good linseed oil one gallon, and of umber half a pound. Boil them together till the oil becomes very brown and thick; strain through a coarse cloth, and set it again to boil; in which state it must be continued till it acquires a pitchy consistence, when it will be fit for use.

"Having thus prepared the varnish, clean well the iron or copper plate, or other piece which is to be japanned, and then lay vermilion, tempered with shell-lac varnish, or with drying oil diluted with oil of turpentine, very thinly on the places intended to imitate the more transparent parts of the tortoise-shell. When the vermilion is dry, brush over the whole with the black varnish, tempered to a due consistence with oil of turpentine; and when it is set and firm, put the work into a stove, where it may undergo a very strong heat, and must be continued a considerable time: if even three weeks or a month, it will be the better.

"This was given among other recipes by Knuckel, but appears to have been neglected till it was revived with great success in the Birmingham manufactures, where it was not only the ground of snuff-boxes, dressing-boxes, and other such lesser pieces, but of those beautiful tea waiters which have been so justly esteemed and admired in several parts of Europe, where they have been sent. This ground may be decorated with painting and gilding in the same manner as any other varnished surface, which had best be done after the ground has been duly hardened by the hot stove; but it is well to give a second annealing with a more gentle heat after it is finished."

PAINTING JAPAN WORK.

Japan work ought properly to be painted with colours in varnish; see page 92. But in order for the greater dispatch, and in some very small works, for the freer use of the pencil, the colours are now most frequently tempered in oil, which should previously have a fourth part of its weight of gum animi dissolved in it; or in default of that, of gums sandarac or mastic. When the oil is thus used, it should be well diluted with spirits of turpentine, that the colours may be laid more evenly and thin, by which means fewer of the polishing or upper coats of varnish become necessary.

In some instances water colours, as before mentioned, are laid on grounds of gold, in the manner of other paintings, and are best when so used, in their proper appearance, without any varnish over them; and they are also sometimes so managed as to have the effect of embossed work. The colours employed in this way, for painting, are best prepared by means of isinglass size corrected with honey or sugar candy. The body of the embossed work which is raised, need not, however, be tinged with the exterior colour, but may be best formed of very strong gum-water, thickened to a proper consistence by bole-ammoniac and whiting in equal parts; which, being laid on in the proper figure, and repaired when dry, may be then painted with the proper colours tempered in the isinglass size, or in the usual manner, with shell-lac varnish.

VARNISHING JAPAN WORK.

The last and finishing part of japanning lies in the laying on and polishing the outer coats of varnish, which are necessary, as well in the pieces which have only one simple ground of colour, as with those that are painted. This is in general best done with common seed-lac varnish, except where its colour renders the use of other methods more expedient; and the same reasons, which decide as to the fitness or impropriety of the varnishes, with respect to the colours of the ground, hold equally well with regard to those of the painting; for where brightness is the most material point, and a tinge of yellow will injure it, seed-lac must give way to the whiter gums; but where hardness, and a greater tenacity, are most essential, it must be adhered to; and where both are so necessary, that it is proper one should give way to the other in a certain degree, a mixed varnish must be adopted.

The common seed-lac varnish, which is the most useful preparation of the kind hitherto invented, may be thus made:—Take of seed-lac three ounces, and put it into water to free it from the sticks and filth that frequently are intermixed with it, which may be done by stirring it about; and then pouring off the water, adding fresh quantities in order to repeat the operation till it is free from all impurities, as it very effectually may be by this means. Dry and powder it, and put it, with a pint of rectified spirits of wine, into a bottle, of which it will not fill above two-thirds. Shake the mixture well together, and place the bottle in a gentle heat, till the seed appear to be dissolved, the shaking being in the mean time repeated as often as may be convenient; and then pour off all which can be obtained clear by that method, and strain the remainder through a coarse cloth. The varnish thus prepared must be kept for use in a bottle well stopped.

When the spirit of wine is very strong, it will dissolve a greater proportion of the seed-lac; but this will saturate the common, which is seldom of a strength sufficient for making varnishes in perfection. As the chilling, which is the most inconvenient accident attending varnishes of this kind, is prevented, or produced more frequently, according to the strength of the spirit, the following directions will shew the method by which weak rectified spirits may with great ease, at any time, be freed from the phlegm, and rendered of the first degree of strength.

Take a pint of the common rectified spirit of wine, and put it into a bottle, of which it will not fill above three parts. Add to it half an ounce of pearlash, salt of tartar, or any other alkaline salt, heated red hot, and powdered as well as it can be, without much loss of its heat. Shake the mixture frequently for the space of half an hour; before which time, a great part of the phlegm will be separated from the spirit, and will appear, together with the undissolved part of the salts, in the bottom of the bottle. Let the spirit then be poured off, or freed from the phlegm and salts by means of a separating funnel, and let half an ounce of the pearlash, heated and powdered as before, be added to it, and the same treatment repeated. This may be done a third time, if the quantity of phlegm, separated by the addition of the pearlash, appear considerable. An ounce of alum reduced to powder and made hot, but not burnt, must then be put into the spirit, and suffered to remain some hours, the bottle being frequently shaken; after which, the spirit being poured off from it, will be fit for use. The addition of the alum is necessary to neutralize the remains of the alkaline salt, or pearlash, which would otherwise greatly injure the spirit with respect to varnishes and lacquers, where vegetable colours are concerned, and must consequently render another distillation necessary.

The manner of using the seed-lac or white varnishes is the same, except with regard to the substance used in polishing; which, where a pure white, or great clearness of other colours is in question, should be itself white; whereas the browner sorts of polishing dust, as being cheaper, and doing their business with greater dispatch, may be used in other cases. The pieces of work to be varnished should be placed near a fire, or in a room where there is a stove, and made perfectly dry, and then the varnish may be rubbed over them by the proper brushes made for the purpose; beginning in the middle, and passing the brush to one end, and then with another stroke from the middle, passing it to the other. But no part should be crossed or twice passed over, in forming one coat, where it can possibly be avoided. When one coat is dry, another must be laid over it, and this must be continued at least five or six times, or more, if, on trial, there be not a sufficient thickness of varnish to bear the polish, without laying bare the painting on the ground colour underneath. When a sufficient number of coats is thus laid on, the work is fit to be polished, which must be done, in common cases, by rubbing it with a rag dipped in tripoli (commonly called rotten-stone) finely powdered. But towards the end of the rubbing, a little oil of any kind should be used along with the powder; and when the work appears sufficiently white and glossy, it should be well rubbed with the oil alone, to clean it from the powder, and give it a still brighter lustre. In the case of white grounds, instead of the tripoli, fine putty or whiting must be used; both which should be washed well to prevent the danger of damaging the work from any sand or other gritty matter that may happen to be commixed with them.

It is a great improvement of all kinds of japan work to harden the varnish by means of heat, which, in every degree where it can be applied short of what would burn to calcine the matter, tends to give it a more firm and strong texture. Where metals form the body, therefore, a very hot stove may be used, and the pieces of work may be continued in it a considerable time, especially if the heat be gradually increased; but where wood is in question, heat must be sparingly used, as it would otherwise warp or shrink the body so as to injure the general figure.

GILDING JAPAN WORK.

The methods of gilding which are applicable to the ornamenting japan work, have been before given under FURNITURE PAINTING, p. 80. Gilding with gold size is almost the only method now practised in japan work. Where it is desired to have the gold not shine, or approach in the least towards the burnishing state, the size should be used either with oil of turpéntine only, or with a very little fat oil; but where a greater lustre and appearance of polish are wanting, without the trouble of burnishing and the preparation necessary for it, fat oil alone, or mixed with a little gold size, should be used, and the same proportionable effect will be produced from a mean proportion of them.

PART II.

GRECIAN, ROMAN, GOTHIC, CHINESE, EGYPTIAN, AND ARABESQUE STYLES OF INTERIOR DECORATIONS, DRAWING, PERSPECTIVE, LIGHT & SHADE, COLOURING, SIGN AND HERALD PAINTING, TRANSPARENT BLINDS, &c.

CHAPTER I.

GRECIAN, ROMAN, AND ORIENTAL INTERIOR DECORATION.

The high state of civilization and refinement which the various states of Greece had attained, at a period when the inhabitants of the greater part of the continent of Europe and the British isles were "painted savages who roamed at will," with all the inconveniences of personal liberty unsecured by social combinations, the Greeks, environed on all sides by the barbarians of the west or the semi-barbarians of the east, were, by the great superiority of their intellectual attainments, enabled to maintain their independence, and for many centuries dictate laws to the surrounding nations.

In all works of art for the erection or decoration of buildings the mind naturally reverts to the beautiful edifices produced in Greece when Athens was in its glory, vestiges of which still remain, and display such perfect specimens both in architecture and sculpture, that have not been equalled, far less excelled, by either architects or sculptors of modern times. Painting being of a more perishable nature, there are no specimens remaining by which a judgment can be formed of the excellence they had attained in interior decorations, except from the incidental remarks to be found in the works of Greek writers: but there can be no doubt, from their great knowledge of drawing and design, that the decoration of buildings by the hand of the painter was as beautiful and chaste as the specimens of Grecian sculpture deposited in the British Museum; and the painter who aims at excellence would act wisely in examining every vestige of ancient sculpture, both Greek and Roman, contained in the museum, making sketches of the ornaments used upon the capitals of columns, the beautiful friezes, vases, &c. as it is by using the mind to contemplate the fragments of ancient art, that an elegant and correct taste is formed, and the decorator becomes enabled to apply his knowledge with certainty where the clever hand, but uninformed mind, is for ever labouring to produce deformity and incongruity. It may be proper to mention here, that the museum is open to all persons decently attired, and that not the slightest expense can be incurred, as notices are placed in various parts of the museum forbidding the attendants from receiving money from the visitors.

Previous to applying the various Grecian, Roman, and Gothic ornaments to the decoration of rooms, it will be necessary for the student to know how to divide the panels or compartments, so that he may know where to place them to produce effect; and this knowledge cannot be acquired without knowing how to form the simple geometrical figures in the most correct and ready way: indeed, without this is known it will be impossible to draw with correctness any square, circular, or oval figure. It will therefore be necessary to give first the names of the different figures, and afterwards to shew how they are formed.

A point is said by mathematicians to have no parts, but in drawing it is represented by the smallest dot that can be made. See Fig. 1. Plate XXXI.

A line is length without breadth. At Fig. 2. is seen a ruled and dotted line. A line even with the bottom of the paper, as this is, is said to be drawn in an horizontal direction; and an upright line is called a perpendicular. If the perpendicular line falls on or crosses the horizontal line, it forms what is called a right angle. This is illustrated by Fig. 3. where the perpendicular line *a*, falling on the horizontal line *c*, forms a right angle at *b*. Fig. 4. is an obtuse angle; it is larger than a right angle, as the line does not fall perpendicularly but in a slanting direction. Thus the line *h*, falling on the line *k*, *m*, forms an obtuse angle at *l*. An acute angle is seen in the same figure; this is less than a right angle, and is found by the line *h*, touching *k*, *m*, forming an acute angle at *i*.

A square has its four sides equal, and its four angles right, as seen at *a*, *b*, *c*, *d*, Fig. 5.

A parallelogram, or long square, has its four angles right, but not its sides equal. Such is *c*, *d*, *e*, *f*, Fig. 6.

An equilateral triangle consists of three equal sides, as *a*, *b*, *c*, Fig. 7.

A section, or intersection of two lines, is when they run across or cut each other, as in Fig. 8. The two lines intersect each other at *a*.

A curved line is that which goes indirectly, as if bent from one point to another, as the line *l*, *m*, Fig. 9.

A circle is a plain figure, comprehended under one single line called the circumference, to which all lines drawn from the centre are equal; see Fig. 10. The point at *a* is the centre; the line crossing it, dividing the circle in two equal parts, is called the diameter.

A radius is any right line drawn from the centre to the surface, as the line *a*, *d*.

An oval is seen in Fig. 11. A spiral, or volute, at Fig. 12. A tangent is a line that touches the surface of another figure without cutting it; thus the line *e*, *f*, Fig. 9. is a tangent to the circle.

Plate XXXI.

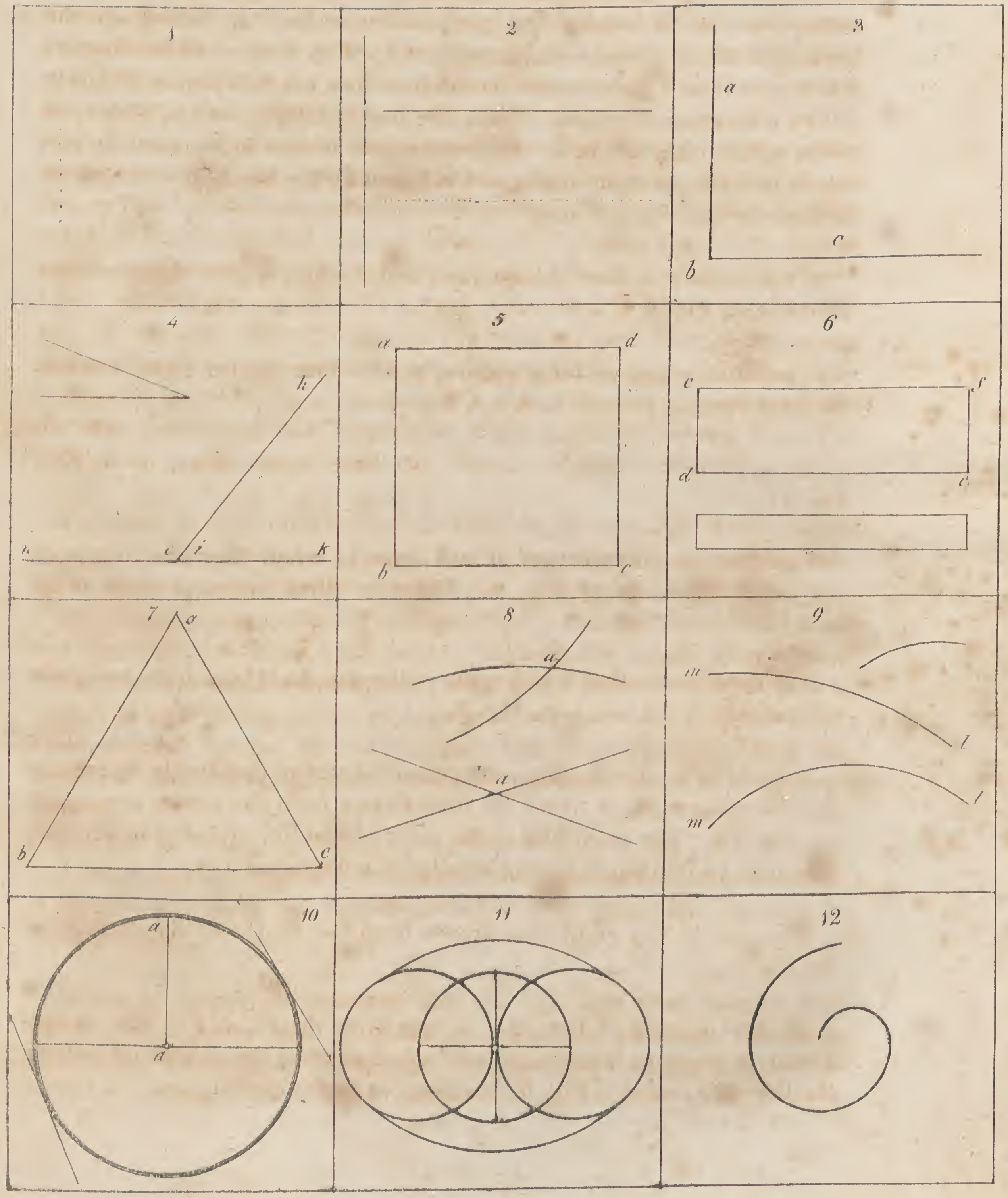

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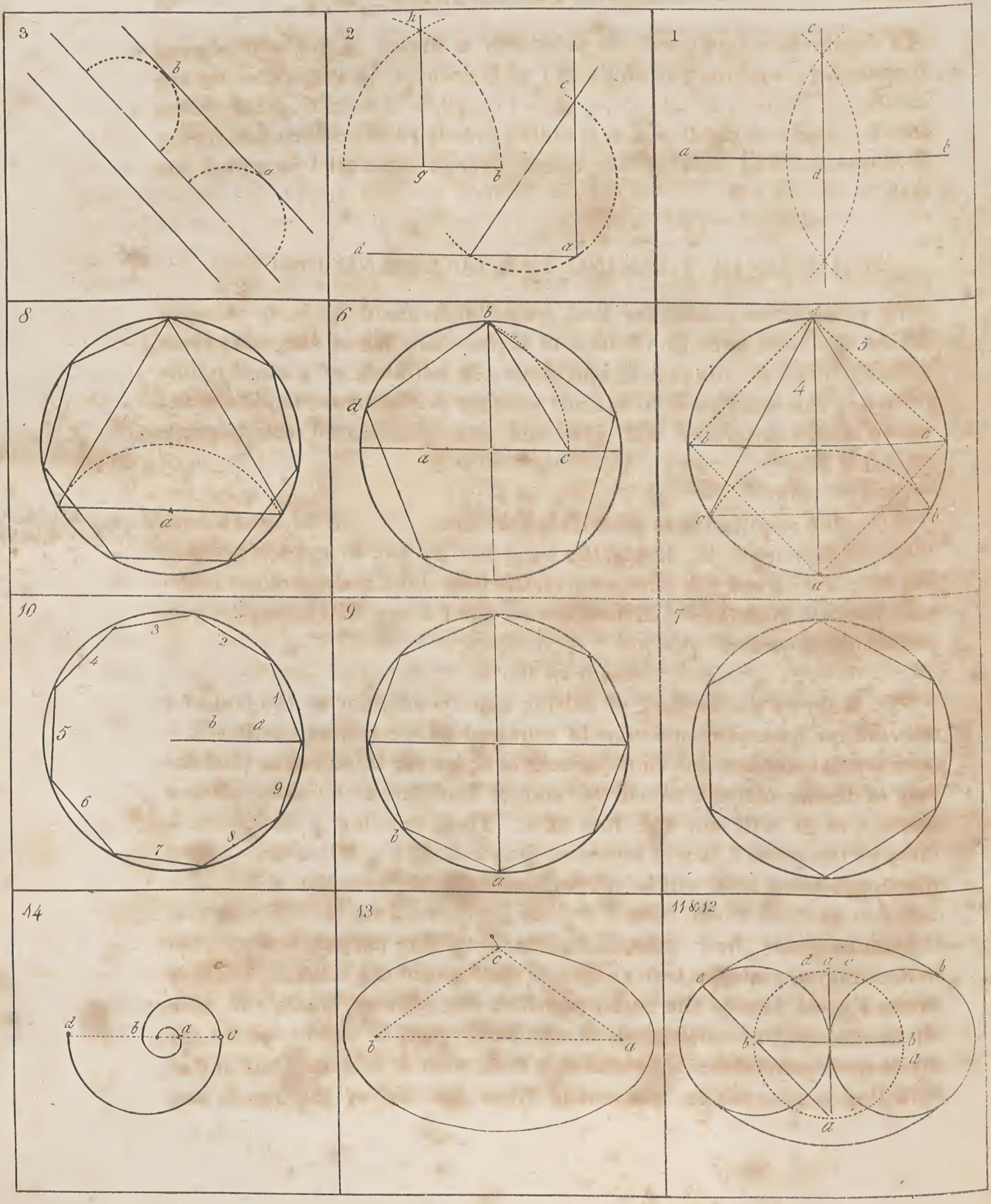
Plate XXXI.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A degree is a small arch or portion of a circle. A circle is always supposed to contain 360 degrees; and an arch is estimated by the number of degrees it takes up; thus Fig. 10. is the circle, divided into 360 degrees, and the line *a, b,* is called the chord of an arch measuring 20 degrees. The part of the circumference measured is called the arch.

METHODS OF FORMING THE LINES AND FIGURES.

To raise a perpendicular line, see Fig. 1. Plate XXXI*. Having drawn the horizontal line from *a* to *b*, place one leg of the compasses on the end of the line at *a*, and draw a small arch of a circle; then removing the compasses to *e*, draw another in the opposite direction: where these intersect will give the true position of the perpendicular *c, d.*

If the line required is so placed that the arches cannot be struck both above and beneath it, divide the base line in two to get the point *g*, Fig. 2.; then from the extremes of the base line, make arches intersecting each other in *h*. A line drawn from *h* to *g* will give the perpendicular required.

Fig. 2. shews the method of raising a perpendicular at the end of a line. Thus, if a perpendicular is required at the end of the line *a, b,* take a point at pleasure, in the example at *b*, over this line, so that one foot of the compasses touch the end of the line at *a;* then trace a circle, and it will cut the line at *d*. Then drawing a line from *d*, through the point *b*, it will intersect the circle at *e*. A line drawn from this intersection to *a*, will be perpendicular to the base line *a, b.*

The above are the geometrical rules for raising perpendiculars; but in drawing on paper, a true square in the form of the letter T, made to fit the bottom line of the board on which the paper is fixed, will save all the trouble of raising perpendiculars. And in rooms where the division of panels, &c. is required, a line, with a weight at the end of it, called a plumb-line, suspended from the top of the room, and hanging the length required, will give the true perpendicular. The great use of the plumb-line will be described in treating on paneling.

Fig. 3. parallel lines; that is, lines even with each other. These may be formed by drawing two semi-circles on the base line, and then ruling the upper line, so that it merely touches the top as at *a*, *b*. In the example the upper line is a tangent to the semi-circles.

A triangle, where all the sides are of the same size, and the same distance from each other, is called, in geometrical works, an equilateral triangle: see Fig. 4. It is formed by placing one foot of the compasses on the point of the circle marked *a*, and the other on the point in the centre, then describing the arch shewn by the dotted lines from *b* to *c*. This will give the length of the line for one side of the angle, which, if exactly measured with the compasses, and ruled to the point on the circle where it happens to fall, which must of course be at the point *d*, will give the other sides.

All the following figures are formed by taking parts of a circle, and as they are of the greatest use in ornamental painting, it is hoped that no student will think of attempting to form any ornament till he has become conversant with the whole of these figures.

Fig. 5. a quadrangle or square. This is easily formed by drawing two diameters at right angles, intersecting each other in the centre, and then drawing lines from the end of one line to the other, as seen at *a*, *b*, *c*, *d*.

Fig. 6. is a pentagon, or angle of five sides. To form this figure draw two diameters, crossing each other at right angles, and then dividing one half of the horizontal diameter in two, which is done in the figure at *a*. On this point place one foot of the compasses, and with the other describe the arch shewn in the dotted lines running from *b* to *c*. And if a straight line is drawn from the points at the end of the arch *b*, *c*, the length of this line will be one-fifth of the circle, and of course give the true length of one side of the pentagon. Then draw a line of the same length from the point *b*, to the part of the circle it may happen to touch, which you will find is at *d*, and proceed with lines the same length till the five sides are formed.

Fig. 7. is the hexagon or angle of six sides; the half of the diameter is the length of the side of the angle. This drawn in straight lines will touch the circle in six places, forming the angle required.

Fig. 8. is an heptagon, or angle of seven sides. This is formed by making a triangle as directed in Fig. 1.; then taking the half of one of the sides as shewn at *a*, it will give the size of one side of the heptagon.

Fig. 9. the octagon, or eight angles. This is formed by drawing two diameters at right angles; then, placing the foot of the compasses on *a*, divide the quadrant or quarter of the circle in two, which is shewn at *b*. This will give the side of the octagon, as it is of course the eighth of the circle.

Fig. 10. the ennegon, or nine angles. If the half of the diameter is divided into three parts, and two of these parts are taken, it will give the length of the side of the ennegon. This is shewn by the division of the semi-diameter at *a*, *b*.

Angles of almost any number of sides may be formed, but those given will be sufficient to shew the way in which they are made; and should other angular figures be required, any work on geometry will give the necessary information.

Oval figures are formed in a variety of ways, in all of which the figure is either a compound of several portions of circles, or it is one line drawn from two centres. The most usual methods are these:—Having described a circle, as at Fig. 11. and drawn two diameters at right angles, as *a*, *b*, *c*, *d*, from the points *a*, *b*, draw two other circles the same size as the first; then from the point *d* draw a line through the last circle to the circumference *e*. Then, placing one foot of the compasses on the point *d*, and the other on *e*, describe the arch *e*, *f*; then, from the point *c*, describe an arch of the same size, on the opposite side, and the oval is formed.

For a rounder oval see Fig. 12. This is formed by drawing a line, and on it describing a circle, the point *a* being the centre: where this intersects the dotted line at *b*, let that be the centre of a second circle of the same size as the first. Then, placing the compasses at the intersection of the two circles at *c*, draw the arch *d*, *e*, that will give one side of the oval, and an arch of the same size, drawn from *f*, will give the other side.

The easiest way of drawing an elliptical or oval figure, of any dimensions, is by one line drawn from two centres, thus:—Set two pins on a right line at *a*, *b*, as at Fig. 13. to serve as the centres, and about these tie a thread, so that when doubled it may give the length and breadth of the oval required, as at *a*, *b*, *c*. Then, holding the thread tight with the pen or pencil, turn it about the centres till the oval is formed. If the oval is required to be long and narrow, place the centres further apart, and observe the contrary if it is to be more round: by this means a true oval of any size may be formed. This method is particularly useful in painting ceilings.

Fig. 14. is the spiral or volute. Make two points on a line, as at *a*, *b*, the points serve one another as centres for a spiral line of any length: for instance—having drawn a semi-circle from *a* to *b*, place one foot of the compasses in *b*, and stretch the other to *a*; it will describe the semi-circle *a*, *c*: then, opening the compasses to *a*, *e*, draw the semicircle *c*, *d*, and so proceed for as many turns of the volute as may be required.

The student is not to suppose that the preceding are the only geometrical figures he may require in the course of his business as an ornamental painter, as a volume could be filled with the variety of figures which may possibly be wanted; but as the author of this work is anxious to confine it to the really useful, so that it may be a practical assistant to the painter, those only are inserted with which it is indispensable that he should be thoroughly acquainted. And as many of the terms used in the following pages will now be accurately comprehended, we will resume the inquiry into the appropriate ornaments of the various styles of decoration, and apply the principles of ancient art to modern buildings, as far as they are compatible with each other.

The decoration of the Greeks is marked with a light elegance of style; the ornaments principally taken from the implements, vessels, and sacrifices used in their religious ceremonies. It is supposed that the walls were divided into compartments or panels, and that these were filled with paintings illustrative of the actions of the god or goddess to whom the temple was dedicated. The walls were divided by pilasters, either formed in the building or imitated by painting, and the cornice of the ceiling was made to correspond with the style of the architecture; and between the pilasters hung painted representations of festoons of flowers. These were, in some instances, intermixed with medallions, on which were painted the heads of persons who had become famous in the services of their country. It is impossible at this period to judge of the decoration of the interior of houses, except by the imitation of them by the Romans, of which we have the best examples from the recent excavations of Pompeii and Herculaneum. These were two populous cities which were destroyed in one night by the irruption of the volcano on Mount Vesuvius in the year 79. This irruption was attended with such vast showers of burning ashes, that the cities were completely covered, and no traces of them seen for many centuries; but an agricultural labourer, about the year 1711, having occasion to dig a deep pit, found his labour impeded by stone work, and as this had always been known to the learned as the site of the ancient city of Pompeii, it was conjectured that the stones formed part of the ancient pavement: but on making further excavations, it was found to be the top of a large public building. As the city was found to be so near the surface, it was determined to restore it to the face of day by removing the rubbish which had originally caused its destruction, as well as that which had been accumulating for ages.

The excavation was made a national concern, and carried on with great spirit by order of the king of Naples. Houses of every description, theatres, palaces, and temples, were soon discovered, and the conjectures of the learned as to the customs and implements of the Romans, in their various stations, now became capable of proof, from the houses, furniture, and skeletons of human beings, who had been suddenly deprived of life in the midst of their ordinary employments. In one habitation was found a baker standing near the mouth of his oven, his dried skeleton still grasping an iron peel, which had been stationary for more than 1500 years; others were found in the act of carrying away money; and that which most concerns the painter to know is, that the walls of many of the houses were beautifully decorated, and that the designs and colours are as clearly to be discerned now as they were when the accident happened.

As the city may rather be said to be smothered with the ashes than destroyed, most of the patterns given in this work, in furniture painting and decoration, are taken from the engraved representations of the walls in the interior of the houses at Pompeii; the ornaments of which are formed in various styles, as the Romans, at the period of the destruction of this city, were masters of the world, and drew into Italy the artists and workmen of every description from the surrounding nations, which they had reduced to subjection. Thus some of the walls decorated in the Grecian taste are divided, as has been before observed, by pilasters highly ornamented, and in the centre of the compartments, between the pilasters, are found small vignette paintings, of some passages in the Greek mythology. Others are decorated in the Egyptian or oriental style. These are distinguished by their disproportioned, though not inelegant columns; the capitals and bases of which differ in every way from the Greek and Roman architecture.

The walls are divided into compartments by flat pilasters, very broad at the base, and tapering towards the top. The grotesque figures, in which the Egyptians so much delighted, form the ornaments of the pilasters, and the compartments between them; and in the upper panels are sometimes seen landscapes without figures, which is never the case in the Greek or Roman decorations.

The most usual decoration of the rooms at Pompeii is a mixture of the ornaments of the various styles, so as to blend the beauties of each with great taste and lightness of effect. This style has obtained the name of the Arabesque, which is certainly best adapted for the interior of dwellings; and the Greek and Roman style of decoration for public buildings.

In the Arabesque style the walls are divided into compartments, sometimes by pilasters, but generally without them, by means of large and small panels: these are formed by single lines, or, in other cases, by enriched mouldings, but all of them highly ornamented at the angles. In this style birds, beasts, fishes, fruit, flowers, &c. are introduced, to form ornaments, without caring for the introduction of the whole figure. Thus the body of a female is made to terminate with the elegant foliage of the acanthus; and dolphins, crossing each other, and intermixed with flowers, form the capitals of Arabesque pilasters: in short, it is fancifully decorating flowing circular lines with every object in nature, without caring for their connection, otherwise than as they tend to form the scroll that is the distinguishing feature of this style, and adds so much to its beauty.

The Etruscan or Italian is a more chastened style of decoration. Here the ornaments are not so bold, and the scrolls are formed by serpentine graceful lines, intermixed with a single leaf or flower. The heavy columns and ornamented freize is entirely abandoned in this style; and the panels are formed by single lines, or narrow plain mouldings, and ornamented at the angles with a single leaf or flower pointing towards the centre, but in all cases preserving a delicacy and lightness peculiar to this style of decoration. The centres of the panels are in some cases ornamented with various angular figures, surrounding stars, or rosettes, and in other cases with small groups of elegant figures apparently in conversation. The colours used in this style are as light as the ornaments, and are generally the lightest tints of blue, pink, and a grey called in colouring neutral tint. This was the general style of ornament used in the Roman buildings, and at a later period in the palaces of the nobility in the Italian states, with the addition of the panels being filled with landscape paintings.

Previous to the invasion of Egypt, the heavy architectural style of painting and decoration prevailed both in France and England. The ceilings were corniced, and the freize, with its appropriate ornaments, painted on the walls. The articles of furniture were, like the decoration, rich but ponderous. On the return of the French from Egypt, it became the fashion to have every thing in the Egyptian style, both in furniture and decoration; but it was soon found that it was more adapted to large public edifices than to private buildings: and the lighter and more delicate of the Egyptian ornaments could only be applied to the latter. These were found nearly to resemble the Arabesque; and in a short time all idea of a distinct style was abandoned, and rooms are now decorated according to the fancy of the painter; who may with propriety blend any kind of ornament in his work, provided it does not confuse or overload it. And while it is confined to the ornaments taken from either of the styles that have been previously mentioned, it may with propriety be called Arabesque.

An attempt was made some years ago to introduce the Chinese style of decoration into general use; but the civilized mind revolts at the sprawling dragons, squat houses, and a perpetual recurrence of ornaments like nothing in nature, or, if like any thing, making a preference of the most ugly and loathsome, as the toad lizard. If the Chinese style is ever used with effect, it must be in large summer apartments, devoted to public amusements. But the painter will never find it to his interest to recommend this style of decoration, as it is attended with endless trouble and expense, and, if executed with the greatest nicety, will never produce a beautiful effect. Should the painter, by the caprice of an employer, be obliged to decorate in this style, he cannot do better than copy the buildings, ornaments, flowers, and figures he may find upon old china; and if the room is to be divided into panels, make it form an open viranda, with bamboo sticks, forming any Grecian or Egyptian fret ornaments; and if the line is continued parallel with the ceiling, let it be broken with small bells or flowers, hung at regular distances from each other. The landscape seen through the viranda cannot be too faint, nor the sky too serene. It is usual to represent a pagoda in the centre of a piece of water, and a boat, ornamented with streamers, near it. One side of a room decorated in this style, will be seen in Fig. 1. Plate XXXI**. The manner of producing the landscape, &c. will be given in the succeeding chapter.

The author of this work is aware that he is running counter to the prevailing taste in the highest quarter, by condemning the introduction of the Chinese style. The Chinese apartment at the pavilion at Brighton may be cited as an instance of elegant decoration, and such it indisputably is; and where the building is of sufficient extent to shew all the styles of decoration, one room may, with great propriety, be Chinese; but even in the room above mentioned this style will find few admirers, and time has shewn but few imitators.

The most beautiful and varied style of decoration is the Gothic. It is suited for every kind of apartment, but more particularly for halls, dining apartments, and concert rooms; and is superior to any other for places set apart for divine worship; and, if applied with judgment, never fails of gaining admiration.

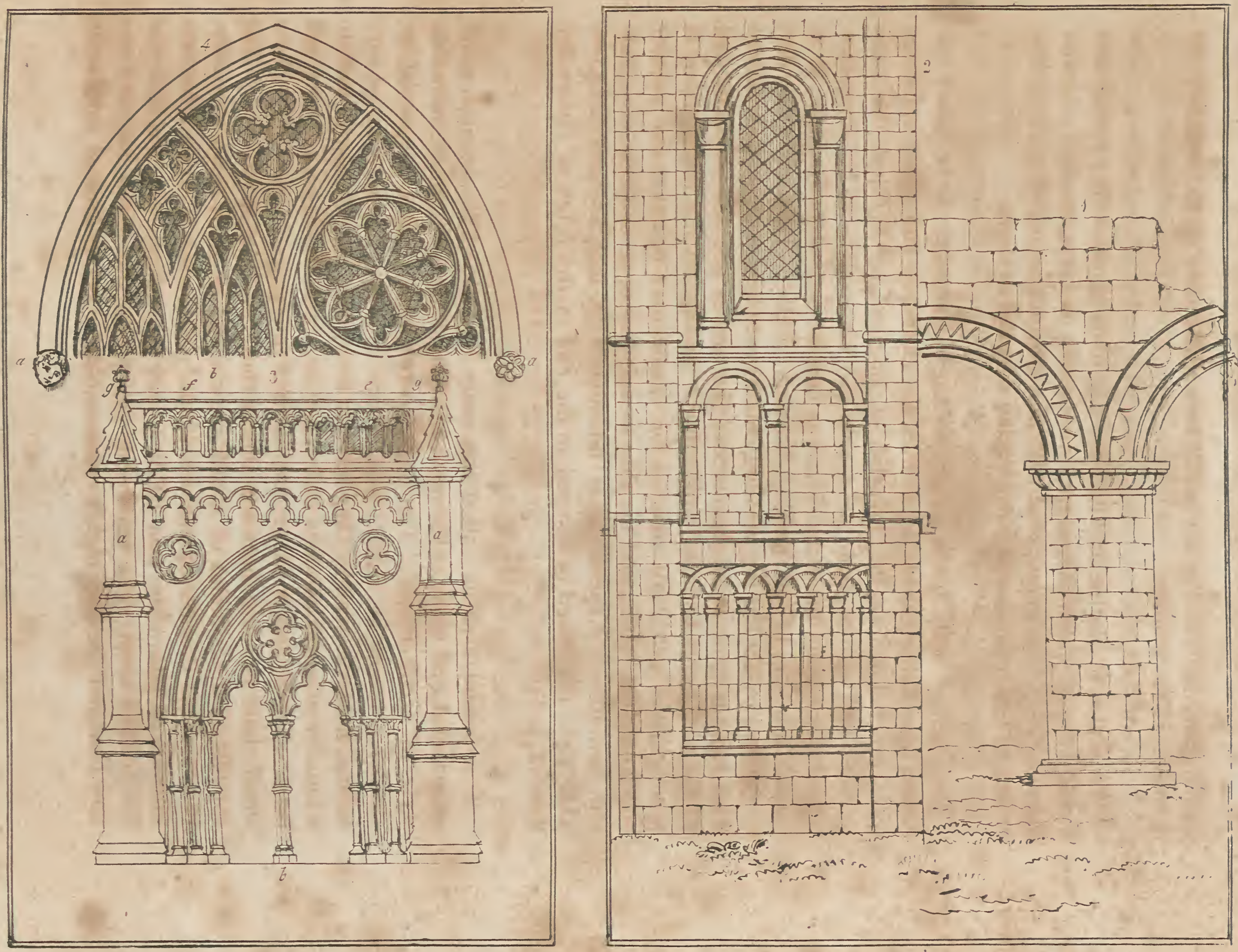
There is another excellence in this style of decoration, which is, that the rules for producing the different styles of Gothic ornament can be clearly defined. That the painter who may be required to produce Gothic tracery, may be spared the trouble of wading through numerous volumes to find the appropriate ornaments belonging to the different eras of Gothic architecture, they are introduced here, having been selected with the greatest care; and he may rely with confidence on the rules laid down; and, upon becoming acquainted with them, may work with the greatest certainty of introducing correct ornaments, according to the style of the architecture of the building he is employed to decorate.

The styles of Gothic architecture are divided according to the different dates at which they were introduced; and it is necessary for the painter to become acquainted with the distinct styles of architecture before he can introduce the decoration adapted to them.

The earliest style is the Saxon or Anglo-Norman. It is called the Saxon from being the style in which the churches and other buildings were erected before the invasion of England by William the Conqueror; and as the same or nearly the same style of building continued some time after the Normans became settled in England, it is called the Anglo or English-Norman style. This style is distinguished by having large round columns or piers, with capitals carved with curious grotesque characters; the arches are semicircular, and all the ornaments bold and projecting. As this style is the earliest, it is rough, and not at all adapted for ornaments; but that the painter may know this style, and be able to select proper subjects for scenic representations, a specimen is introduced in Fig. 2. Plate XXXI**. This style continued to be used to the end of the reign of Henry the Second, in 1189.

The second style is called the early English. This is much more ornamental, and many of the most beautiful Gothic buildings are in this style of architecture. The arches are pointed, and supported by slender columns or shafts; and where they are required to be very strong, from the weight they have to bear, they are worked to imitate a number of small columns tied together. The windows are long and lancet-shaped, and if large are divided into two or more lights, by a small shaft running between them: these are called mullions. The capitals of the columns or shafts are worked in light elegant tracery, to represent flowers of various kinds, and round compartments are introduced above the two lights to fill up the space in the centre of the pointed arch. The rude plain parapet of the Saxon building was now changed for one highly ornamented, by being divided into small

Plate XXXII


4
a
a
g
f
b
3
e
g
a
a
b
2
1

GOTHIC DECORATION.

panels, terminating in pointed arches. Where these only project from the face of the parapet they are called panellings, but where the light is seen between them the parapet is said to be pierced.

The buttresses that supported the walls, and were usually placed at regular distances between the windows, were ornamented in the upper division, and in most cases chamfered; that is, had the corners taken off nearly the whole length of the division; each division was called a story: thus a buttress, with three divisions rising one above the other is said to be a buttress of three stories. The buttress in most cases terminated with a beautiful ornament rising above the parapet, called the finial.

Fig. 3. Plate XXXII*. is a specimen of this style of architecture. *a*, *a*, are buttresses of three stories, the second and third stories chamfered. *b*, is a lancet-arched window divided into two lights by the mullion, *c*. The arch filled up with the trefoil, *d*. The parapet is partly panelled and partly pierced at *e* and *f*. The finials are seen at the tops of the buttresses at *g*, *g*. This style of Gothic architecture may be very successfully imitated in painting; the ornaments are few and easy, and the whole has a light, pleasing effect.

The most beautiful style of Gothic architecture is that called the decorated English, or florid Gothic: it was in use till the latter end of the reign of Edward the Third, in 1377. It is distinguished by the expansion of the pointed arch, and the introduction of large windows, divided by mullions, terminating in the arch in elegant tracery, forming circles, arches, leaves, &c.; and so varied was the taste of the architects of this period, that no two windows were ornamented alike. In this style beautiful Gothic canopied niches were introduced, containing figures of saints, bishops, kings, and others. A specimen will be found of four different niches in Plate LIX.; and a window in the decorated style will be seen in Fig. 4. Plate XXXI**. The heads at the termination of the weatherings, marked *a*, *a*, are called corbels. The upper part of the window, enclosed in the circle, is called a Catherine wheel; and circular windows, in Gothic architecture, are usually called by this name: the niches on each side the window are canopied, the pinnacles have small projections coming from them: these are called crockets. The ornaments of niches will be better understood by referring to the large examples in Plate LIX. introduced under the head of STAINED GLASS.

The base of Fig. 1. is panelled with quartfoil ornaments, and a rosette in the centre; the pedestal is octagon. On this stands the figure in armour; the canopy projects in three divisions, and at each angle is a crocketed pinnacle.

Fig 2. is a sunk niche, no part of it, with the exception of the ornaments, projecting beyond the face of the building. The top is a gable, crocketed, and terminating with a finial.

Fig. 4. is a projecting canopy, with what is called an ogee arch. This is likewise crocketed, and the base is sunk panelled with a flat arch.

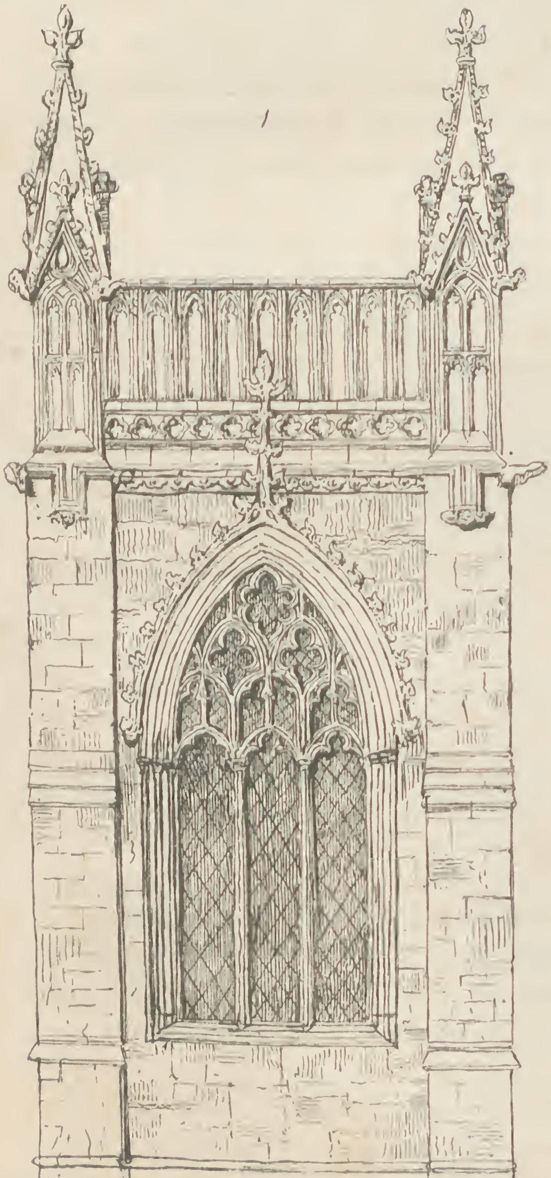
By a careful examination of the plates, the names of every ornament here mentioned will easily be retained in the memory. There are, of course, architectural terms for every member or part of the building; but if the painter wishes to obtain a correct knowledge of these, he must have recourse to works written expressly on this subject: all that is endeavoured to be inculcated here is the ornaments belonging to the different styles, as they will apply in painting.

The fourth and latest style of Gothic is that called the perpendicular, from the ornamental lines being continued in an upright direction over the whole of the building. Henry the Seventh's Chapel is in this style, and the Abbey Church at Bath. A small window and part of a wall, to convey an idea of this style, are shewn in Fig. 1. Plate XXXII**.

At the time this style was introduced, Gothic architecture was in its decline; and though many beautiful buildings were erected in the perpendicular Gothic, yet the continued lines have an unpicturesque

GOTHIC ORNAMENT

Plate XXXII.**



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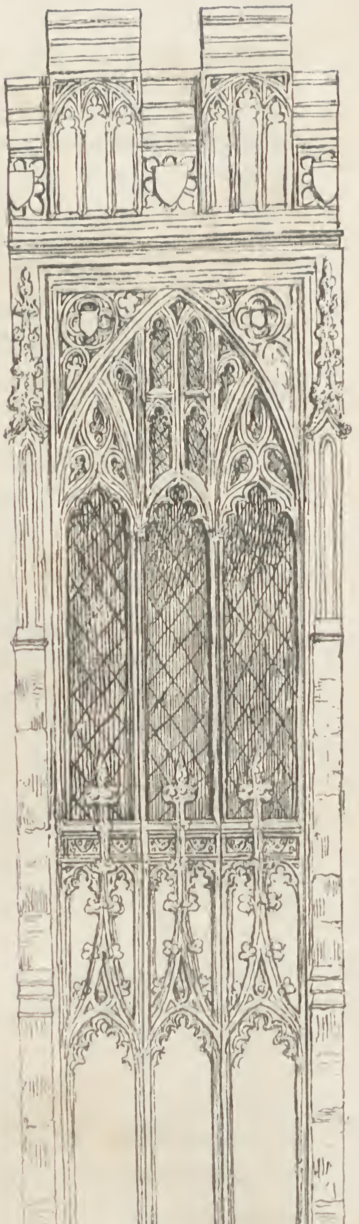

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effect in painting; and if the style of building enforces their introduction, it will be well to mix them with the ornamented arches of the third style, or florid Gothic. This has been done in Plate XXXVIII. The side of a room is painted in the perpendicular style, but, instead of letting the panels appear quite square, as a strict attention to this style would demand, the pointed arches are introduced. The landscape will be mentioned when the plate is more immediately before us. Gothic ornaments, of every description, will be found in Plate XXXVII.

Further remarks on the various styles of decoration will be made, as the application of them comes under consideration in the next chapter.

CHAPTER II.

ELEMENTS OF ORNAMENT, LIGHT, LIGHT AND SHADE, PANELLING, &c.

HAVING, in the preceding chapter, given a brief sketch of the various styles, we shall now proceed to their practical application to modern decoration; and, in order to do so, it will be necessary for the student to draw the various ornaments with facility and correctness.

In the former part of this work ornaments are given, with instructions for tracing them, so that persons with a little care and industry might produce them on furniture, without a knowledge of drawing: but when the decorater is called upon for patterns for an apartment, he will find that something more than tracing the ornaments designed by others is required of him, and he must become the designer of the appropriate figures which his style of decoration may require.

The art of designing and drawing ornaments is easily acquired if the student proceeds in the readiest way; and, as the cheapest materials are of course the best for mere practice, the following are recommended, as they may not only be procured at a trifling expense, but give a facility in producing delicate lines with rough materials, and, by use, enable the painter to draw with as much freedom on the walls of an apartment as on the finest paper.

The best crayon may be made by merely wetting a ball of pipe-clay to about the consistence of paste, and then rolling it into sticks of the thickness required to fit an instrument for holding it, called a port-crayon, which may be purchased at any ironmonger's. The surface to be drawn on should be a large slate, or a board painted black; neither of these should be laid flat on a table, but placed upright against the wall, or allowed to incline as if laid on an easel. When the student attempts to draw with the pipe-clay on the board, he will find that he wants some support for his arm. This he will obtain by using a stick in one hand, on which he can rest the arm he draws with: he will then find that he can produce flowing curved lines with freedom and effect; and, if they are not exactly what he wishes, a wet sponge will efface them.

It will be necessary for the student to commence with the most simple figures. He must accustom himself to draw a perpendicular line without the aid of a ruler, also circles, semi-circles, ovals, and volutes. When these can be produced with tolerable accuracy, form other figures; for instance, a perpendicular line, with two serpentine lines on the right and left of it, turning in opposite directions: do not cease drawing this figure till the curved figures on both sides of the line are exactly alike. Other figures may be formed by taking parts of the patterns previously given. It will be advisable only to practice outlines in this way; and as soon as a command of the hand is ac-

ELEMENTARY DECORATION.

Plate. XXIX.

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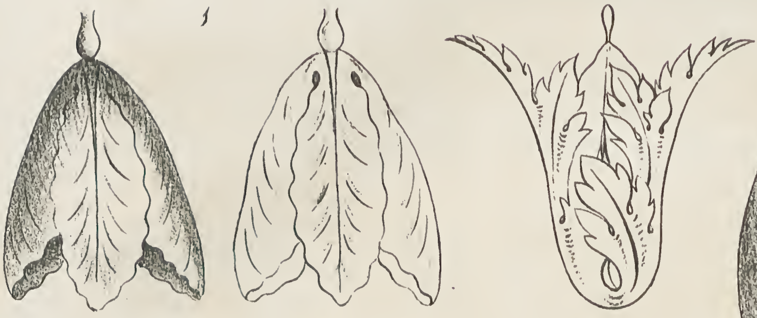

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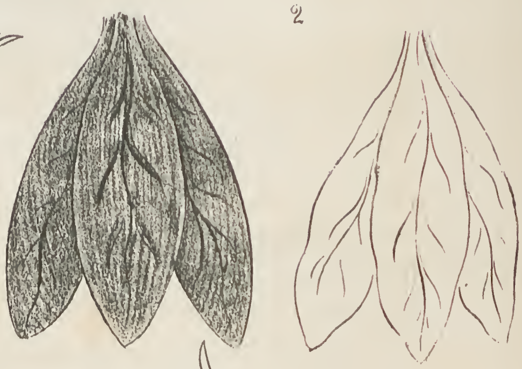

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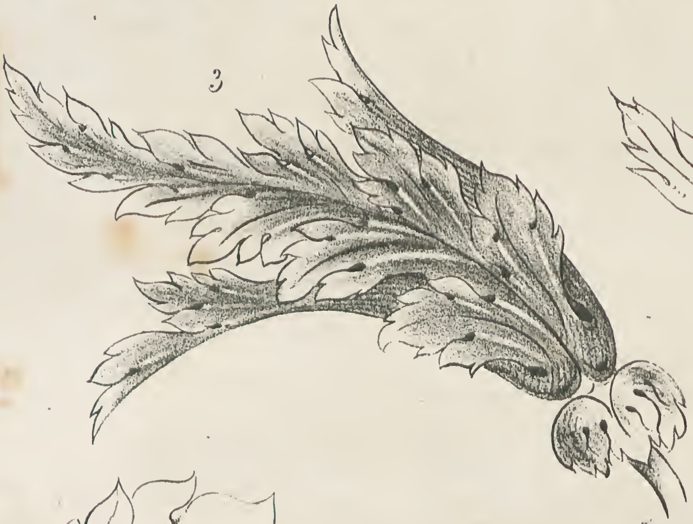

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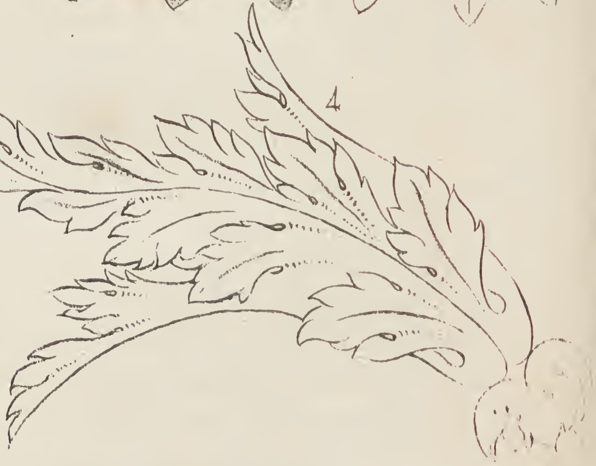

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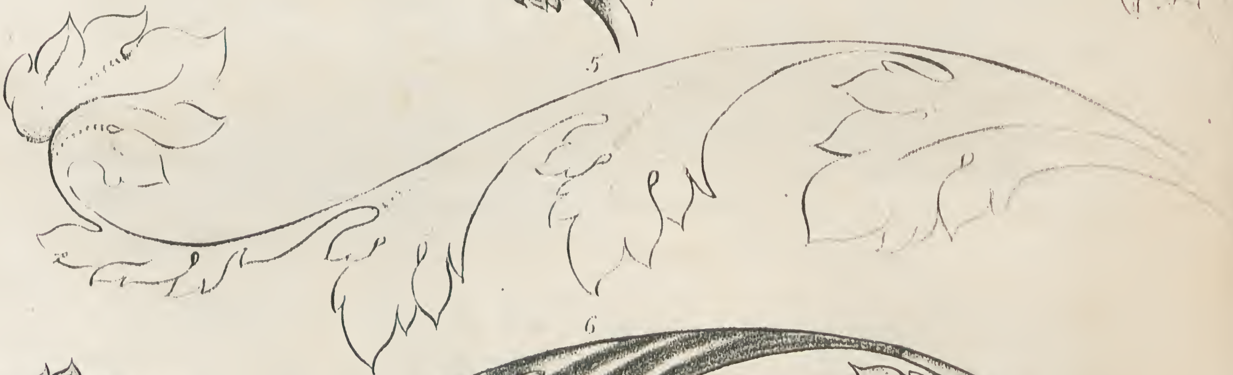

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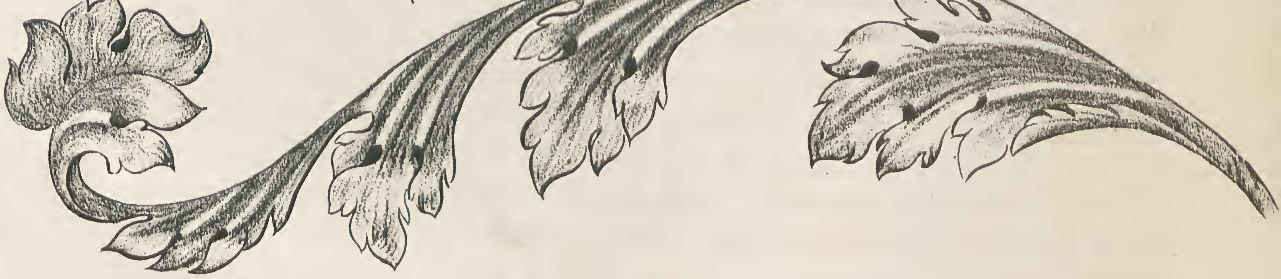


quired, so that the more simple forms may be produced at will, proceed to the elements of foliage shewn in Plate XXIX.

Fig. 1. is commenced with the perpendicular line in the centre: the waved line on both sides of it forms the centre leaf. The lines on the outside are the outlines of the other leaves. The touches, shewing the fibres, will be easily made by looking at the pattern. The shaded figure will come under notice in LIGHT AND SHADE.

Fig. 2. is another cluster of leaves. The curved line in the centre is drawn first, and then the outline of the leaves: the line is not so much curled as in Fig. 1. Both these subjects should be drawn much larger than the copy.

Fig. 5. will require more care and judgment; as the beauty of the figure will depend on the graceful curve of the first line, it will be advisable to form a perpendicular line, and draw this pattern on both sides of it: nothing is so much required in drawing ornaments as the constant practice of forming both sides of a figure to correspond with each other. When both the curved lines are formed, commence the leaf at the point by drawing the first division of it; then turn to the line on the opposite side, and draw as much on that, taking care to form both alike. Proceed in this way all down, on both sides.

The student will now be able to proceed to Fig. 4. This figure is rather more complicated than the last, but must be commenced in the same manner, viz. by drawing the line in the centre; and it will be better to finish the whole leaf before the leaves that branch from the sides are drawn. When the learner can execute these figures with facility, he can turn to Plate XXV. and draw the outline of the angle-piece from Pompeii. He must commence this by drawing a straight line directly through the centre of the piece, and then make points on the line at the places where the different ornaments appear; thus the first point will shew the length of the acorn at the bottom of the line; the next will shew the place where the leaves branch off on both sides; the next point should be placed where the two curved lines meet each other, and the place marked where the spiral ornament terminates. The last point that is required on the straight line is that shewing the length of the leaf.

The student will find it a great advantage to commence his drawing by marking the proper distance of one object from another; as it is much easier to take out the spots twenty times than re-draw any part of the figure. As soon as the points on the line are accurately placed, commence the drawing from the top, drawing the lines on both sides of the centre line to form the spear head, bring those lines tapering towards the bottom till they come to the point which marks the top of the oak leaf. Draw the outline of the leaf, and afterwards the spiral line: going on the same way, from point to point, till the drawing on the line is completed. It will then be easy to place points at equal distances from the centre, shewing the termination of the long flat leaves on both sides; and when the distances are properly marked, draw the leaves nearest the centre, first getting them as near alike as possible, and let the tops hang gracefully. When these are done proceed with the next, and so on till the drawing is complete.

The ornaments projecting from the sides are purposely omitted here, till the student has had more practice in the elements of decoration.

Any of the figures given under the head of FURNITURE PAINTING will furnish excellent lessons for practising on the slate or board; and should the learner feel himself competent to draw the angle-piece of an Arabesque panel, he can turn to Plate XXXII., and select them according to fancy.

Having obtained sufficient command of hand to produce outlines, it will now be proper to practise putting them in light and shade. This will be best performed by drawing with a dark crayon on white paper.

If the student is not quite confident of his power in drawing a correct outline, it will be better to commence his studies in light and shade, with black lead pencil, on paper: but in this case it will be tedious work to draw ornaments at large; nor can they be drawn with the same freedom as if drawn with black or red chalk.

The lines in shading with the black or red crayon should always, in the first instance, run in the direction of the outline, taking care to keep them bold and free. This will be understood by referring to the shaded leaf in Fig. 2. Plate XXIX. This is called laying on the first shade. The second shade is formed by letting lines of the same strength cross those first laid on: after this is done, the outline must be strengthened, and the fibres and dark touches given. The student will observe that this figure appears flat and dull: the cause is the absence of light. And this small figure is introduced thus early to the notice of the student that he may observe the effect of the absence of light. All subjects that are intended to appear to project from the the face of the work, must have a due proportion of light, shade, and middle tint. The light will always be most prominent in the parts that are to appear most projecting; the middle tint is that which is spread over the whole of the subject; and the shade is the dark parts of the picture.

The shaded subject in Fig. 3. Plate XXIX. will appear much more pleasing than Fig. 2. Here the three colours or tints assist each other. In drawing this subject with the crayon, if it is done upon a white surface, of course the white must be left for the strong light, and the lines forming the middle tint be drawn all over the other parts of the subject: the strong shade is drawn over the middle tint, and the dark touches given at last to give spirit to the whole.

But the most pleasing drawings in crayons are produced on drab or slate-coloured paper. Here the paper forms a middle tint, and the drawing may be made exactly as on the white paper, leaving the coloured paper for the light: when it is finished with the black crayon, a few touches with the white crayon made on the most projecting parts will throw it forward amazingly, and give a spirit and finish to the whole that it is impossible to produce on white paper.

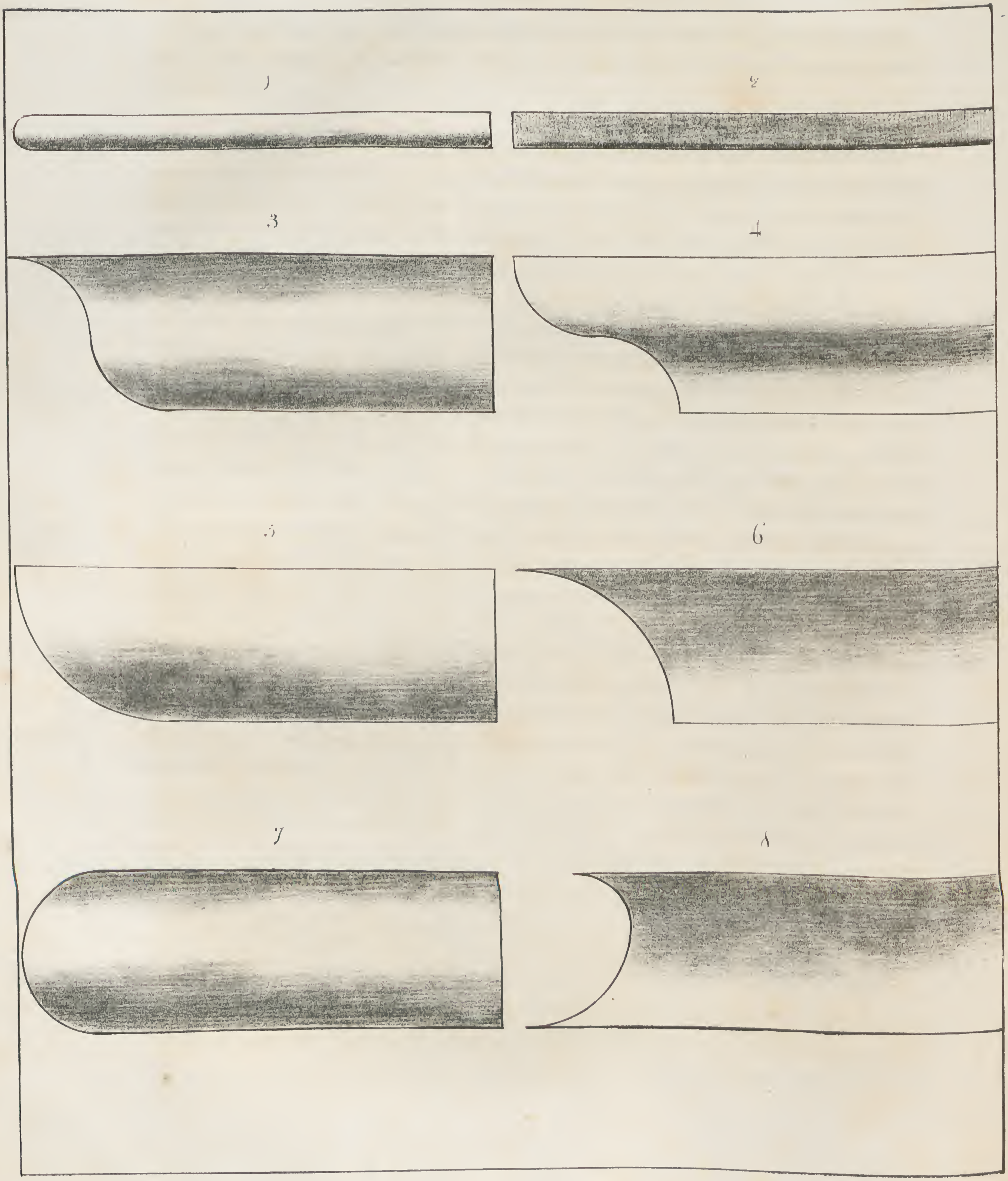
Fig. 6. will be an excellent subject for this sort of drawing, the touches of white being added on the extremity of the leaf and on the large folds.

The same method may be used in copying any of the furniture patterns; and the student will find himself amply repaid for his trouble by the great facility he will acquire in sketching any pattern that he may have occasion for, without the aid of rule or compasses, which the painter will seldom require.

When the student can draw and shade the subjects pointed out to his own satisfaction, it will be advisable that he should practise with the brush and colours, as he will only get the theory of the art of painting ornaments by using crayons; but every subject he copies in distemper colours will be a practical advancement, as many persons can draw beautifully with the pencil or crayon, without having the power of using the brush, though practice will make one as easy as the other. The student, who cannot afford to keep the whole of his drawings, may practise in colours very economically, and with quite as much effect as with the most expensive materials, by the following method:—Get a piece of oil cloth, or a large milled board, and paint it, in oil, a light drab or lead colour. The board, or cloth, should be about a yard square. Give it two coats of paint, and, when quite hard, pummice it down, to take off all the roughness, and afterwards wash it with sponge dipped in a little soap and water. On this board any subject may be painted in distemper colours, and afterwards washed off. The only colours necessary for the practitioner are black and white; and these are always at hand by mixing a little whiting in milk, and lamp black in beer: it will be the most ready way to have some of both well ground, and put in tea-cups. The colour may be kept damp by pouring a little milk or beer over them; not enough to make them thin, only just sufficient to keep them damp. When either is required, a little may be taken out of the cups with a palette-knife, and placed on the palette for use. The brushes that will be required are three small hog's-hair tools, with long handles; and with these simple materials the most beautiful subjects may be produced with rapidity and effect.

MOULDINGS.

Plate XXX.



The student will now see the use of making the crayon drawings by using the maul stick, as he will now find it absolutely necessary, and will have acquired the free use of it.

The subjects most proper for the student to commence with will be the plain mouldings, Plate XXX. These will shew the effect of light and shade, on a raised surface, in every variety, and at the same time make the moulding familiar to the mind of the painter.

Fig. 1. is a small bead called, in architecture, the astrigal. In painting a column it would be the small ring that is placed next to the capital of the Corinthian, or composite column, and seems to bind the leaves together. The outline of this member may be drawn four times the size of the copy in this figure: the light is supposed to come from the top. When the outline is drawn, take a little of the pure white on the end of the brush, and work it about on the palette till the brush is properly filled with it, so that it may make a clear, full stroke, without letting the colour run. With this draw a bold, broad line, taking care that the edge of the brush presses against the outline, without going beyond it: immediately under this line draw a bold, black line, with the black brush, taking care that it does not go quite to the under outline. Then take the third brush, and, passing it between the black and white, blend and soften them together; and with the same brush, which will be sufficiently full of colour, make a line under the black line, so that the whole space may be filled up. The form of astrigal will then be produced; the white first put on being the light, the black the shade, and the scumbling them together with the third brush producing the middle tint. The light line at the bottom is the effect of reflection, and will be mentioned in Fig. 7.

Fig. 2. is merely a flat square moulding in architecture: it is called the annulet. This may be produced by mixing a little black and white on the palette, with the third brush, till it becomes a light grey, or neutral tint: with this the whole may be painted over. The dark shade, at the bottom, must be a line cleanly cut with the same brush, dipped in the black, so that the shade may be darker. It will be observed here, that no part projects, consequently no strong light is required.

Fig. 3. is a moulding called, in architecture, cima recta. In this moulding the centre projects. The dark part, near the upper outline, is a broad line of neutral tint, rather dark. Another line may be made with the same brush, dipped in the white, directly under the first broad line. A line of pure white must next be painted; under that, a line of light neutral tint; and next to that, a very dark line, nearly black; and, close to the under outline, a well cut line of neutral tint. These may be all blended together with the badger-hair softener, and will produce this moulding with great effect. The light line under the dark one gives the effect of the light reflected from any surface on which a round body is placed.

Fig. 4. is the cima reversa: it is exactly the reverse of Fig. 3. This is also called an ogee moulding. It may be painted by the first line in the lightest shade of neutral tint, the next line pure white; let both of these be broad full lines: the next line, neutral tint, rather darker; and the next quite dark, nearly black; the next a little lighter; and the last much lighter, but nothing like so light as the line of neutral tint first laid on. These layers of colour, one succeeding the other, are called lines here; but after they are all laid on, they must be softened and blended together, so that no appearance of distinct lines are left, but the whole appears a well graduated mass of light and shade.

Fig. 5. is the ovolo, or quarter round, as it only projects one quarter of a circle. It will scarcely be necessary to say how this moulding may be executed in black and white, after the directions given for the preceding.

Fig. 6. is the cavetto, or hollow. It is the reverse of Fig. 5. and may be produced as easily.

Fig. 7. is the torus. This is semi-circular, and the light comes upon it exactly in the centre. On observing the copy, it will be found that the dark shadow at the top and bottom does not come quite to the outline at either. This is caused by the light being reflected from other bodies, upon which this semi-circular moulding may be placed. Care must be taken to preserve this light in painting, as the rotundity of an object entirely depends on its proper disposal.

Fig. 8. scotia, a hollow moulding used in bases to capitals.

The student will find that a little practice on these mouldings will enable him to produce raised or hollow figures at pleasure. If the lesson is practised by candle light, which will be quite as good a light as any other, it will be advisable to let the subject stand during the night, to see the effect in the morning. It can easily be wiped off the board with a wet sponge.

The lessons already practised in crayons will be easily executed in colour, particularly if another brush is added to the three already mentioned: this should be a camel-hair pencil, the hairs of which should not be quite so long as those used for lettering, nor quite so short as for painting in water colours on paper. With this brush all the small light touches may be put in, and likewise the very dark one.

Plate XXVI. will be an excellent subject to practise. It must be began by first drawing the long flowing line that proceeds from the pine. Let the volute be formed flowing and graceful, and it will add greatly to the beauty and correctness of the whole. If the spiral line, or volute, is formed as directed in Fig. 14. Plate XXXI*. all that will be required will be to make the points for the lines of the volute to touch upon; it will not be necessary to use the compasses, as the hand, with the assistance of the points, will form the volute sufficiently correct, if the handle of the brush is of the proper length, and it is held at some distance from the point. As soon as the principal line is formed, and the small curve that springs from it, upon the long spiral line make points to shew the distance of the ornaments from each other, and draw the outline of them with care with the white crayon. When the outline of the whole is properly drawn, fill in the whole with middle tint, formed with black and white, to a light lead colour: this must be laid over the whole of the subject, and the dark tint put on immediately afterwards. Before the first colours laid on have got quite dry, the light touches should follow as quickly as possible.

In the three tints that are laid on in such rapid succession, it is only the masses of colour that are intended, and not the working up the forms of the leaves or other ornaments. This is the second part of the process, and cannot be done till the ground colours are suffered to get dry. Of course the different masses of colour should take the forms they are intended ultimately to represent as nearly as they can when put on with the large brushes. When the ground colour is dry, mix up a dark tint on the palette, and with it draw the outline of the foliage and other ornaments, with the camel-hair pencil, taking care that the lines are thin that are opposed to the light; every part must be properly marked with this colour. As soon as this is done, take some pure white, and at the places that are to appear most raised make sharp touches with a clean camel-hair pencil. These, it will be observed, are only made on the lightest masses: the touches should not appear in lines, but dabs, and these should be laid on only in the brightest lights, so that the subject may have a sparkling, light effect. The last touch that will be required is the marking on the darkest masses, with a tint nearly black: this tint must be used very sparingly, and never on the light masses, or it will destroy the effect of the whole.

The directions are so fully given on this subject, that it will be almost unnecessary to repeat them on any other examples the student may think fit to execute in black and white; but if he has a large board it will be advisable to paint the same subject three or four times. The practice will give great facility of execution, and the errors made in the first or second drawing may be corrected in the last by having them constantly before the eye.

The painting of lines should likewise be practised on the board; and, in order to use the hand to drawing them on a wall, the board should be fixed quite upright.

The best method of obtaining a perpendicular line is by fastening a small weight at the end of a string: the weight should be sufficiently heavy to strain the line. A small piece of lead, weighing about one pound, formed like an egg, cut in two, but rather tapering at the point where the string is attached to it. This can be easily procured, and no ornamental painter would choose to be without one; but, of course, any other kind of weight tied to the string may be substituted if the lead weight of the proper form cannot be conveniently obtained. If the student desires to form a right angle on the board, he should first chalk the line to which the weight is tied, and then mark the distance from the edge at which he wishes the line to be drawn; over this point hold the line between the finger and thumb till the weight at the other end is quite still: then, with the assistance of another person, to press the weight against the wall, so that it cannot move, the string will be strained quite tight. Take the string between the finger and thumb, draw it from the board about an inch, loose it suddenly, and it will leave a true perpendicular chalk line on the board. Having obtained this line, it will be easy to produce another at right angles by referring to Fig. 3. Plate XXXI.

Should other lines, parallel to these, be required, it will be only necessary to measure the distance, and make points for placing the straight-edge at both ends of the line. The straight-edge or ruler should be as long as the work may require, and one side of it should be feather-edged. There should be two small handles near the ends of the straight-edge, so that it may be held firmly to the wall.

In drawing a line, let the brush be well filled with colour by working it about the palette. Then placing the brush on the straight-edge, let it touch the board very lightly; and in the upright lines commence from the bottom. It will always be most advisable to draw the whole length of line at once; but if it is too long for the colour in the brush to produce it, do not try to make it do so by increasing the pressure of the brush against the wall, but fill the brush again with colour, taking care not to have so much in it as to cause it to run: in recommencing the line let the brush slightly touch first on that part of the line which has been produced, and proceed with a light, regular pressure to the end.

The student will find a little more difficulty in producing lines than he would at first sight suppose, and therefore he should practise on the board till he has acquired the true pressure of his hand, and can produce lines with clearness and accuracy.

When the painter has had sufficient practice on the board, in black and white, he will feel himself competent to produce specimens worthy of being kept for patterns of his ability and taste as a decorator; and for this purpose milled boards of a proper thickness should be procured, taking care to select those that are most free from lumps or indentations. In order to make them bear the colour, it will be necessary to prime them first with size and whiting: the size must not be too strong, or it will crack. The boards should have at least two coats of priming before any colour is applied.

The student will now have to exercise his taste and judgment in the selection of colours for the ground of the patterns he intends to produce. These must, in all cases, be sedate, and neither too dark or light, but partaking of the tone of the middle tint. The words sedate and still, as applied to colours, are used to denote those that are not gaudy or showy. Thus red would be called a gaudy, violent colour, while a grey would be styled sedate and neat: but there is a possibility of so blending one colour with another, that the most violent colours may be subdued, and yet the tint preserved. It will be necessary for the practitioner to procure a small quantity of most of the pigments mentioned in the first chapter of this work. These should be ground, on a clean stone, in water only, and when dry the powder should be scraped off the stone, and put into separate phials for use:

by this means all trouble of grinding will be saved when the colours are wanted, and as small a quantity can be used as the subject may require at the time of painting. The whiting, if good, will be best kept in the lump. And as this pigment forms the substance of almost every colour that can be used in distemper painting, of course a much greater quantity will be required.

Red, blue, and yellow, are called the three primitive colours; and by a due mixture of these colours with each other almost every tint may be formed. When any of these colours are mixed together to form another colour, the latter is called a compound colour: thus blue and yellow mixed together will form a green; red and yellow an orange; and blue and red purple. The primitive colours are all opposed to each other: thus red will not harmonize with blue or yellow, and it likewise contrasts strongly with the compound colour, green: yellow is contrasted with blue and red, which when mixed, form purple; the latter is therefore the strongest contrast to yellow.

If the three primitive colours were mixed together, they would form a grey or neutral tint; and if they were so blended that the red rather predominated over the yellow and blue, it would form a red grey; or if the blue was the preponderating colour, it would form a blue grey. And it is by nicely balancing and contrasting the three primitive and the three compound colours with each other, that the milder tints are formed; and the most pleasing contrasts are not those that are the most violent: for instance, the eye would be grievously offended to see the walls of a room painted of a bright red, and bordered by either blue or yellow; but it would contemplate with satisfaction the red subdued into a bright salmon colour, by being mixed with yellow and white; and the contrast would be beautiful if the blue and yellow were blended together, and softened with white to form a light still green for the border.

The decorative painter will find great delight and profit by blending the colours together in due proportions, and keeping patterns by him, marked with the quantities used, and noting the result of his experiments; he will then know what compound tints will blend and harmonize with each other, and have no difficulty in producing the tint of any pattern his employer may fix upon for the six boards which are more immediately under consideration.

No. 1. may be made a light salmon colour by mixing venetian red, a small quantity of yellow, and sufficient whiting to give body, and reduce the red to the proper tone required; and, as before observed, if a gentle contrast is required for the bordering or angle-piece, a light cold green will be found to harmonize with the salmon colour: so will yellow, properly subdued with white.

No. 2. may be a light grey, by mixing a small quantity of venetian red, some prussian blue, or indigo, with a due quantity of whiting: if the grey is required very light, very little red should be used, but if a dark grey, more will be required to subdue the blue. In many cases painters mix black with dark greys, but it always overpowers the colours, and makes them appear disagreeable and dirty. The border and angle ornaments may be yellow, subdued by white to a straw colour, or, in some cases, white alone. Red and green are bad contrasts to grey, and should never be brought in contact with it, however subdued by whiting or other pigments.

No. 3. may be made a light plum colour by mixing indian red, blue, and a little lake. These colours must be mixed in whiting till the proper strength of colour is obtained: if the colour is too red add blue and lake, but if too blue add lake and more whiting. A white, or straw-coloured border, will look well on this tint; or if it is made very light, a dark border, formed of venetian red, yellow ochre, and a little vandyke brown: the border in this case must be a dark warm brown.

No. 4. a light delicate green, formed by verditer, king's yellow, prussian blue, and whiting. The green may be made warm or cold, according to the quantity of the yellow that is used. A delicate pink border, formed of lake and white, will be a beautiful contrast to the green. A very light green, nearly approaching to white, may likewise be used with effect.

No. 5. a light cinnamon brown, formed with vankyke brown, king's yellow, venetian red, and whiting. These, if properly mixed, will form a very delicate orange grey tint, which may be opposed in the bordering and angle-piece, by either a light grey, a white, a light green, or straw colour.

No. 6. may be a dark red, formed with venetian red, vermilion, and lake, with a little whiting. This may be contrasted with a warm green, a bright orange, a straw colour, or white. The warm green and orange will have the best effect.

The boards must be well prepared with two coats of the ground colour, and be thoroughly dry, before any ornament is painted on them.

Plate XXXII. will furnish a variety of ornaments for the six boards, by taking the easiest parts from each angle-piece, and varying them at pleasure. Great care must be taken in drawing the subject very correct and lightly, with the white crayon; and if any part is drawn incorrectly, let it be brushed off with the duster. If the boards are cut square, a true right angle may be easily formed by drawing two lines at equal distances from the side and bottom of the board, and the centre of the angle-piece marked, by placing the straight edge in a diagonal direction across the board. It would only be a repetition of the directions already given if the process of drawing the ornaments in Plate XXXII. was entered into. The brushes, &c. will be the same, and the learner, who has practised diligently in black and white, will find no difficulty in laying on the colours: of course the light shade and middle tint must be attended to in colours, as well as in black and white. Thus in painting the light green angle-piece, on No. 1., the light green before mentioned, and which will form the first ground of the ornament, is the middle tint: the shade must be formed of a darker green, by mixing venetian red, indigo, and yellow ochre, in due proportions, to the tint required. With this colour all the foliage, and other ornaments, must be drawn upon the middle tint, taking care to have the shadows broad and spirited in the dark parts. While this is drying, the sparkling touches of light may be given on the most projecting parts, with a very light green, nearly white. When these are dry, the light shade and middle tint will be complete, and it will only remain to give spirit to the dark masses, by marking upon them with a dark shade of blue, red, and very little yellow; this will give roundness and effect to the whole, and render the work bold and masterly.

The student will take care not to introduce either black or white on any subject painted in colours, as they will overpower the other tints, and thus destroy the harmony of the whole work.

The straw-colour bordering and angle-piece of No. 2. must be formed in the same way as the preceding. The shade may be made with yellow ochre, red, and vandyke brown, mixed to the tint required; and the light with whiting, mixed with king's yellow: so that the colour is much lighter than the first colour laid on, that forms the middle tint. The marking and spirited touches on the masses in shade may be given with vandyke brown alone.

The dark border, No. 3., is shaded with vandyke brown, and the light formed with yellow ochre, indian red, and a little whiting. Vandyke brown may be used in any shade, and, if used dark enough, will be sufficiently strong to mark the dark touches.

The pink border of No. 4. will require great care in painting, but will look very beautiful if well executed, in lake and white (or if lake is found too expensive, rose pink will answer the purpose for practice.) This will be the middle tint: the shade is formed of indian red and rose pink: and the darkest touches with rose pink and indigo. These must be mixed so that the blue does not overpower the rose pink, but reduces it to a purple crimson. The strong, sparkling lights are formed of rose pink and whiting.

These examples will be sufficient to shew that all middle tints must have their light and shade partake of their own colour only, by being lighter or darker, as the case may require.

In painting the six boards it will not be advisable for the student to form the most difficult figures for his first essay in colours; but as his mind will of course be more occupied in producing the various tints, it will be better to commence with the most simple subjects. And by way of practice, previous to painting on the prepared boards, it will be advisable to paint the moulding in different colours, pursuing the same mode as directed in black and white.

To the generality of painters it will of course be of consequence that they should produce something that would pay them for the overtime they employ during their studies; and at the same time that the work they are employed on should not occupy too much room. The author of this work has directed the attention of several young men, who were desirous of becoming ornamental painters, to painting subjects on paper, the proper size for chimney boards. The expense of colours is trifling; and, as they only valued their time as house-painters, they could afford to sell the pieces cheap, and found no difficulty in obtaining purchasers; and, in a few instances, this employment has been pursued with profit in the winter, when they would otherwise have been unemployed. As the mode of painting subjects for this purpose is the same as in decorating the walls of an apartment, it will be given here, in the hope that many readers will improve upon the hint, and, by aiming at higher work, find profitable employment at the season which is generally felt so severely by painters.

It will, in the first place, be necessary to procure a tolerably strong board, about 30 inches wide and 42 inches long: then, having four sheets of stout cartridge paper, damp them regularly all over, and let them lie rolled up together for half an hour or more: they are not sufficiently damp unless they will lay flat, without curling at the sides, when unrolled on the board. Make some paste, by putting a spoonful or two of flour in a basin, and pouring upon it a little cold water, not so that the flour will float on the surface, but just enough to mix it thickly together: then, with a spoon, stir it well, and break all the lumps; and if it is too thick, add a little more water. When the flour is quite mixed, add about half a pint of water, in which a lump of alum has been dissolved: stir the whole together, and put it into a saucepan to boil, keeping it stirring the whole time: when it boils it will thicken, and it is then fit for use. It may be said, by many painters that it was not necessary to tell them how to make so common an article as paste, but it is well known that many a man understands little of the manufacture of the articles he uses every day: a wager might be made, that not one shoemaker in a hundred knows how to make paste, though he cannot finish his work without it; and there may be painters in the same predicament.

When the cartridge paper is sufficiently damp, paste the four sheets together, taking care that the joins are perfectly smooth; and before you lay the paper on the board, take care that there is no paste upon it, or on the paper; it will otherwise stick to the board, and the painting will be spoiled in removing it. Having spread the paper flat on a table, put the board upon it, and afterwards spread the paste on the paper that projects beyond it: when this is done, fold it over the edges of the board with care, so that the pasted part of the paper may stick to the back of the board; press the paper to the board, and let it lie flat for a few minutes.

Upon taking the board from the table, you will probably find that the paper in front looks uneven and rough in parts: do not attempt to press it down, but let it stand in a dry warm place till the next morning, to dry gradually, and it will be found to be strained as tight as a drum head: do not try to hasten the drying by putting it near the fire, as it will not then dry regularly. When the paper is quite dry, take a sharp penknife and pare off the edges that are joined in the centre, as much as possible, and afterwards rub down the uneven surface with dry pounded pumice-stone, or with a piece of very fine glass paper.

The surface is now fit to receive the ground colour, which must be previously prepared and laid on quickly and evenly, with a large brush. Take care there is not too much size in the colour. The paper must of course stand a few hours to dry, and then another coat may be given to it. No traces of the joins will now be seen, and the surface will be well prepared for the ornamental work. The student will do well to practise four angle pieces in each corner, and a rosette in the centre, of which there are many beautiful patterns under the head of Stained Glass. The ornaments that are fit for that species of decoration will answer equally well for this.

The centre of the board, and the true position of the angle-pieces, may be found by placing the straight-edge across the board, from corner to corner; a very slight line should be drawn nearly as far on the board as the angle-pieces are intended to occupy, and a slight line, three or four inches long, as near the centre of the board as can be judged by the eye. Then place the straight-edge at the two opposite corners and again draw a short line in the centre, crossing the other. Where these two lines intersect or cross each other, is the true centre of the paper, and, of course, is the situation for the centre of the rosette, or other ornaments.

The ground colours, and their contrasts, for the ornaments, may be the same as detailed in the six boards; or any other tints may be formed with the compound colours, according to the taste and judgment of the painter. But light retiring colours will always find more admirers among persons likely to purchase the work when it is executed, than gaudy tints. The same rule may be observed in the subjects chosen to ornament them: it is the light chaste work that is less trouble to the painter, and most proper for the purpose.

On these boards all kinds of sunk and raised panels may be practised with excellent effect, as the space to be painted on is so immediately under the hand of the painter. Flowers, fruits, and landscapes, when the painter has acquired the art of producing them, are beautiful subjects for fire boards, and will be sure to find purchasers at a good price. When the panel is finished, it can easily be cut off the board by passing a sharp knife round the edges; it will come off quite flat, and may be rolled up without injury.

It may be as well to remark in this place, that prints and drawings are mounted in the same way that this paper is prepared for painting on; that is, by the mounting paper being made damp, and pasted at the edges, which is made fast to a board, and the print or drawing to be mounted, is likewise made damp; it is then pasted and pressed upon the mounting paper: they both dry together, and when quite smooth, the mounting paper is cut from the board as before directed.

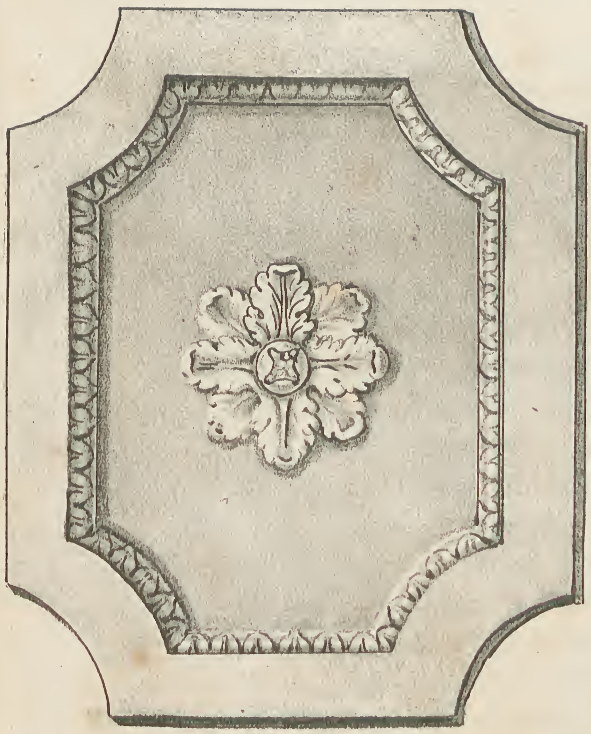
The damping the paper before it is applied to the wall, is the principal art of paper-hanging; those who practise it make paste in large quantities, using the proper proportion of alum. The paper is then cut into proper lengths, and a number of the lengths pasted, and suffered to remain till the damp of the paste is quite absorbed by the paper, it is then in a fit state to apply to the wall or canvass, and will be found to be quite even when dry, however puckered it may seem a short time after it is done.

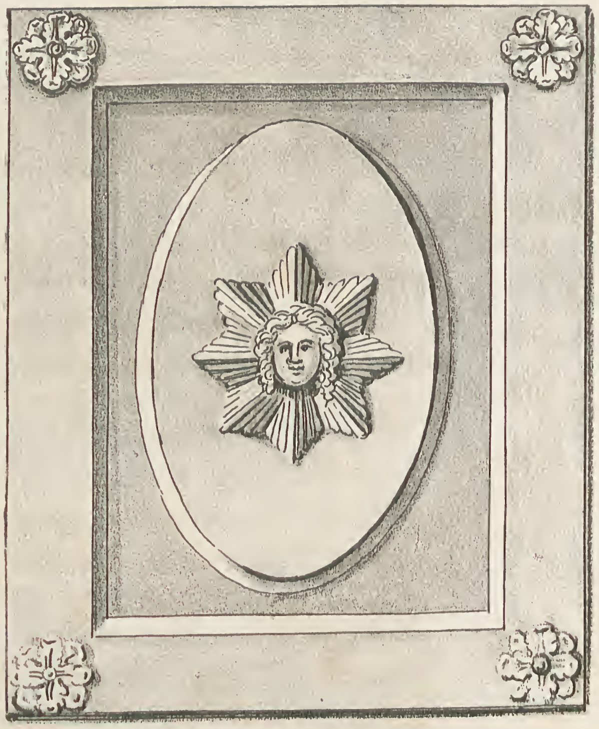
At Plate XXXIII. will be found four panels of different forms.

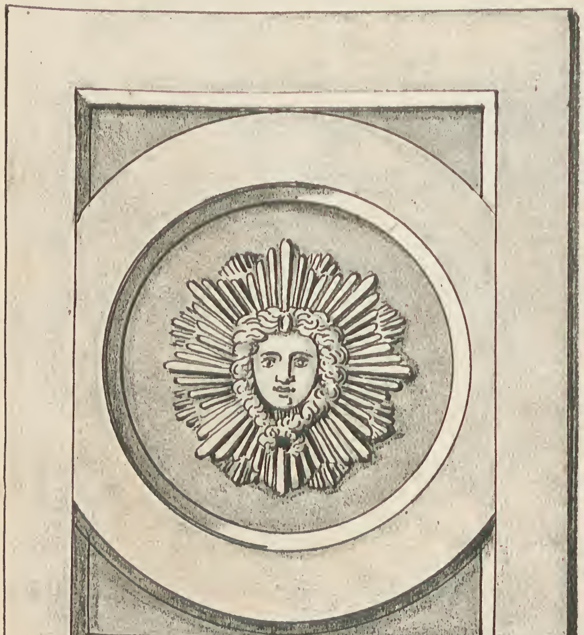
Fig. 1. is a sunk panel with circular curves cutting off the angles. It will be easily drawn by describing a long square or parallelogram, and at the point of each angle describing a curve with the compasses. The inner lines are formed in the same way; great care should be used in setting out any regular figure like this, as the slightest error will throw the whole out of drawing, which nothing short of taking the subject off and repainting it can restore. Nothing can be easier than is the formation of a true square or parallelogram, if the first right angle is formed as before directed. Many painters, ignorant of the geometrical rules for the formation of figures, trust entirely to their eye, or to admeasurement from some supposed upright line near them, and this is the reason that paneling is frequently seen so incorrect. Having made a correct outline drawing on a green ground with the same tints that

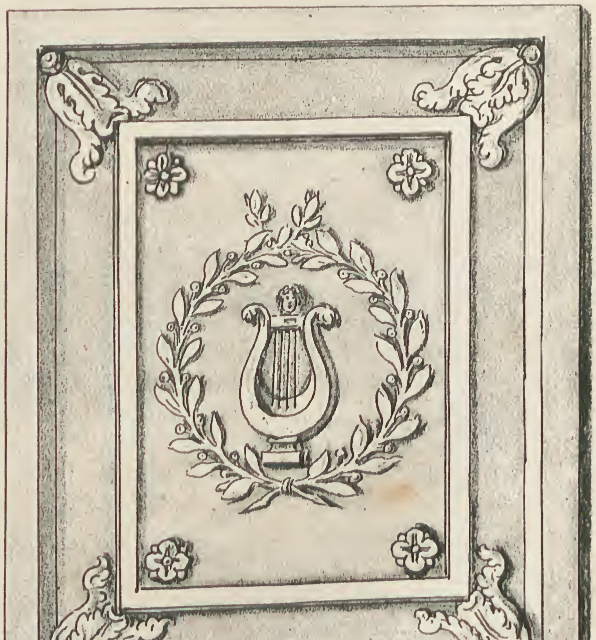
PANELING.

Plate XXXIII.









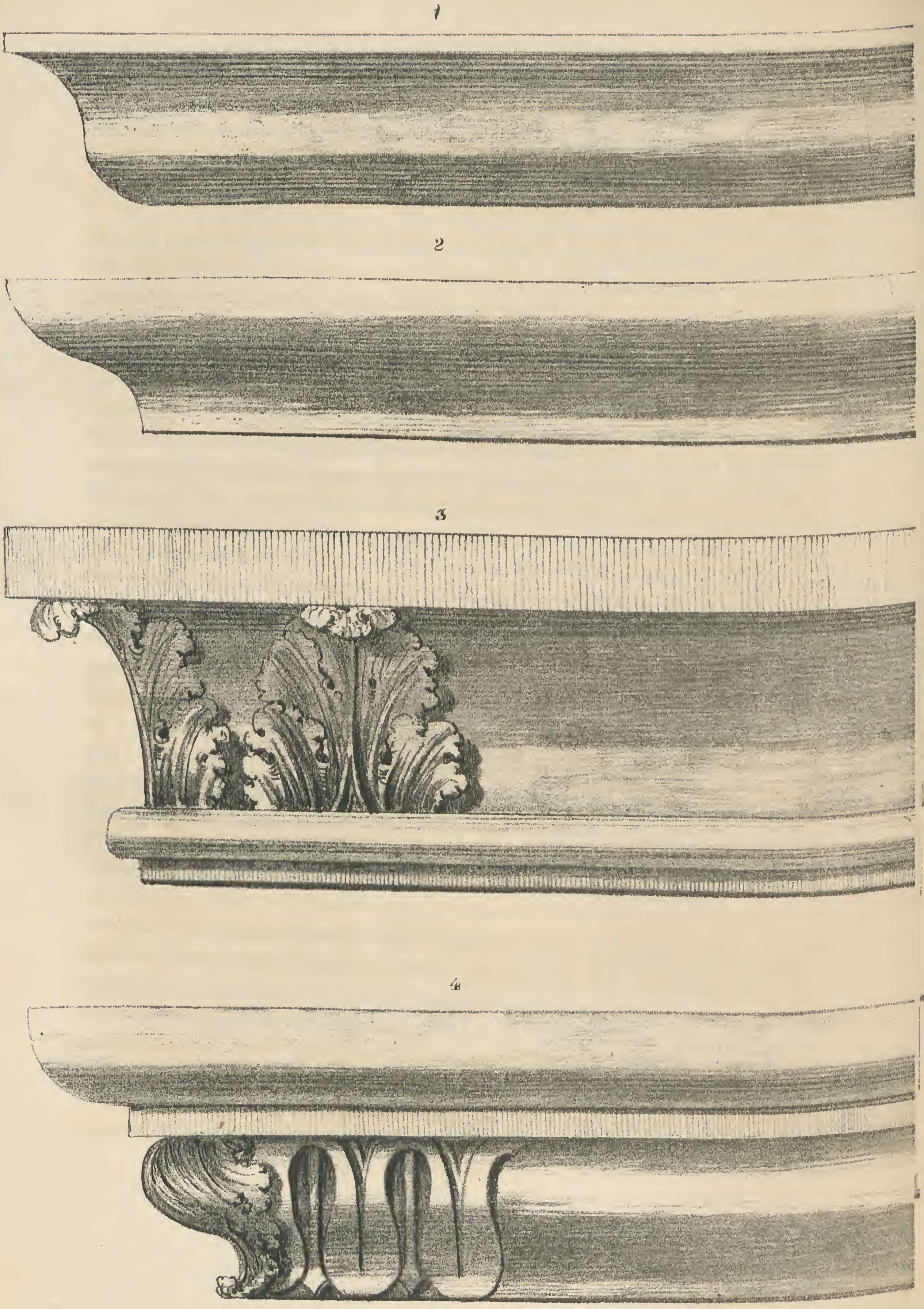
the ground was coloured with, omitting great part of the white, so that it is, at least, three shades darker than the ground. Paint the moulding on the dark side as seen in the pattern.

This moulding is the cima recta Fig. 3. Plate XXX. and the colour just put on is the middle tint: before this is dry, a dark line should be drawn very clean by applying the straight edge to the outline of the panel; the tint of this shade must be, at least, three times darker than the middle tint: another line of the same colour should be drawn near the edge of the inside of the moulding, taking care not to take it quite to the edge, otherwise the reflected light will be lost. At the raised part, in the centre of the moulding, form a light line with a tint not more than one shade darker than the ground. These, if possible, should all be drawn while the middle tint is damp, so that the lines may all blend and soften one into the other, as directed in painting this moulding in black and white; and this will be easily done by the painter who has practised these mouldings as before directed. The dark side of the moulding will now be formed, and it only remains to paint the shadow of it upon the ground: this, in the subject under consideration, is supposed to be about half the breadth of the moulding, and must be painted with one clean broad line with a tint about two shades darker than the middle tint of the moulding, taking care to let it come off slanting at the angles: the side of the panel, in shade, will then be finished. The middle tint of the light side should be two shades lighter than the ground; the shade on the moulding will be cast on the hollow near the outline, and should be three shades darker than the ground; the strong light will be in the most projecting part of the moulding, and is formed with a thin line about two shades lighter than the middle tint; when this is properly painted, the panel will be completed. A simple rosette painted in the centre of the same colour as the ground, only varying the tints, will be as much ornament as a panel of this sort requires. Some pains has been taken to describe the process of painting this panel as it requires just the same attention as the larger panels in the division of a room. Any of the mouldings may be used for sunk panels, or the panel may be formed by merely a slanting flat moulding; in this case it will only require one line of middle tint without either light or shade, but this panel will be tame and without effect, compared with the mouldings.

Fig. 2. is a raised panel. The colours of the ground and the panel should not be violently contrasted: a light blue ground, with a yellowish light drab panel has a very good effect; the oval in the centre is a projection on the first panel. To form this figure, a square must first be formed, and afterwards four small squares at the angles: in these small squares circles are formed, so that the lines form tangents to the circle; one of the squares and circles thus formed will be found in the example. The painter will easily perceive the parts of the figure he is to retain, and those parts that are of no farther use. As the first panel is raised but a short space from the ground without any moulding, a thin light line, about three shades lighter than the panel, must be run on the light side; and as it is supposed to be seen in an oblique direction, only one side of it can be seen, and the shadow that is thrown on the ground from the other side: this shadow will be a dark grey upon the ground, and will be best found by mixing red and blue to a neutral tint. As the rays of the sun are supposed to strike on the edge of the panel, it would throw a long shadow from the opposite side; thus the dark grey shade may be as broad again as the light on the opposite side of the panel, and the shade at the bottom rather darker than that at the side. The oval in the centre projects in a greater degree than the panel. The lights on the side must be the same tint as used before for the edge of the first projection. The shadow must partake of the colour of the ground by mixing it with vandyke brown: the oval must be formed by means of two centres as directed in Plate XXXI.*

Fig. 3. is a square panel with a circular sunk spandal. After forming the inner square, find the centre by placing the straight-edge diagonally on the angles, and draw two short lines near the centre: where they intersect each other is the point from whence the circle may be drawn.

In large circles it will be necessary to have recourse to other means of producing it than the compasses. The most simple is the best, and



MOULDINGS

that is by driving a small nail into the centre point, to which attach a string with a loop: at a proper distance from the centre, tie another loop, in which place the port crayon; then keeping the string on full stretch, form a line round the centre, and if correct, it will touch in the centre of the square. The same method, by varying the loop for the port crayon, will produce the inner circle, and will likewise give the curve at the outside of the circle at the angles.

This pattern upon a large scale will form a handsome division for a painted ceiling, for a theatre, concert or lecture room, particularly if the space within the circle is clouded. The pattern will show the light and shade on this panel, and there can be no necessity for repeating the directions for producing the proper effect in colour.

The moulding is the cima recta, Fig. 3. and the small moulding Fig. 1. Plate XXX. The moulding is enriched with the egg ornament, which may be seen at large in Plate XXVIII.

Fig. 4. is a moulding raised upon the ground merely to show the effect of light and shade. It forms a very beautiful panel for the decoration of the front of the boxes in a theatre or for fancy doors. This subject will not require any further instruction than is conveyed in the previous lessons.

The painter who practises these lessons the size for chimney boards, will find but little difficulty in producing them, on an increased scale, for ceilings or panels of rooms, and he will find the great advantage that the practice on a small scale will give, independently of being enabled to produce patterns in distemper colours for any work that may be required.

The ornaments in the centre and at the angles of Fig. 4. may be executed in gold; and at the present time, when it is so much the fashion to decorate shop fronts, and the interior of apartments with gilding, the students would do well to practise some of the specimens of Arabesque, and French designs for furniture painting given in a former part of this work, in shaded gold: the instructions on light and shade for colours will give all the requisite information. The shading colours for gold are the transparent browns, such as burnt sienna, umber, and vandyke brown.

Plate XXXIV. is a pattern of a painted ceiling for a concert room introduced here, to shew the division of a space in panels on a larger scale. The shape of the ceiling is a parallelogram, and in order to introduce the circle with effect a small panel is taken from the length at each end, so that the centre division may be square.

The centre of the square must be found by the diagonal lines from the angles intersecting each other, and round the point of intersection a circle must be drawn. The inner circle, forming the thickness of the gilded foliage of the border, must be drawn from the same centre, and likewise the curved outline of the angle pieces.

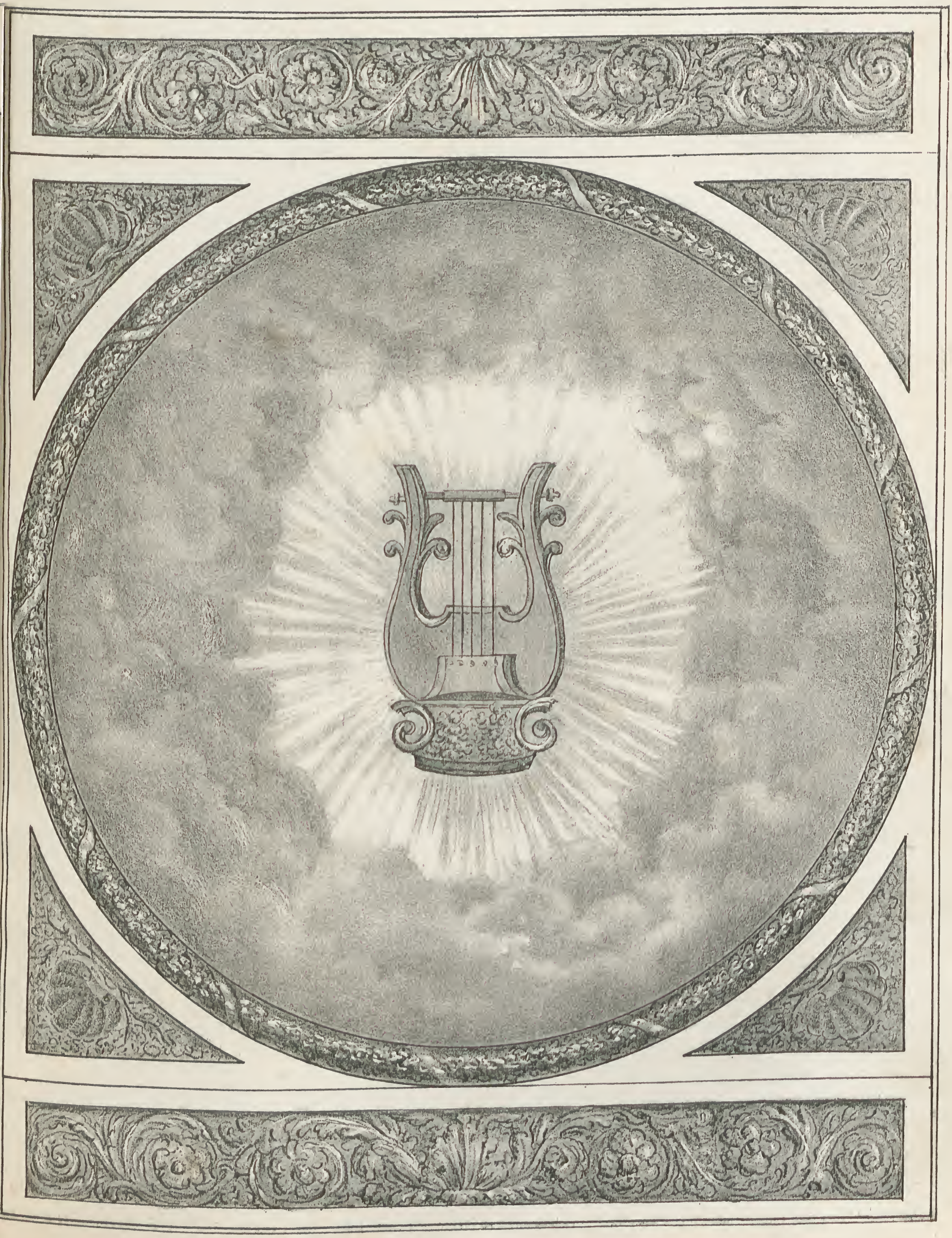
The method of producing clouds on ceilings will be more fully detailed when landscape in distemper comes under our consideration. The painter who attempts to produce the clouding from this pattern, must begin from the centre, before the lyre is painted. It should be a deep yellow, with rays proceeding from it in every direction, of a bright yellow and white. The thin edges of the clouds are painted of this colour, and the larger masses with a red grey, making it darker as it approaches the outline of the border.

The circle is painted to represent a golden wreath of oak leaves, bound with a ribbon. The middle tint, or ground, is burnt umber. The mass of shade all round is vandyke brown. The light in the centre is yellow ochre.

After the masses of light and shade are dry, draw the leaves, &c. with a dark tint of vandyke brown; and instead of heightening the light with a light tint of the same colour, lay on the sparkling effect

PAINTED CEILING.
Concert Room.

Plate XXXIV.



with gold size, which, when nearly dry, cover with gold leaf. Where the gold is to be applied, is left quite white on the foliage of the circle in the pattern.

The flat tints of the square may be a light yellow green; the panels at the ends, and the angle-pieces, light red; the ornaments on them done with darker tints of lake and vermilion, and the marking with vandyke brown. The extreme light may be gold, but it must be very sparingly used.

The lyre, in the centre, should be drawn with gold size, and the gold leaf afterwards spread over it. The markings on the lyre are made on the light side with burnt sienna, and on the dark side with vandyke brown. If a few thin rays of gold were spread over the lightest rays of bright yellow, in the sky, it would add greatly to the beauty of the whole. When the painter can produce this subject, on a small scale, for a chimney board, or a screen, he need not shrink from the execution of any work that can be required of him in the decoration of panels or ceilings.

CHAPTER III.

DECORATION OF APARTMENTS IN THE ARABESQUE, ETRUSCAN, AND GOTHIC STYLES, LANDSCAPE IN DISTEMPER, SCENIC PAINTING, PERSPECTIVE, &C.

THE directions given in the preceding chapter will enable any intelligent mind to produce every variety of panel on a small scale; it will now be necessary to commence the decoration of apartments in the various styles of embellishment.

In order to study the effect of any kind of decoration, it will always be expedient, both for the satisfaction of the painter and the employer, to be enabled to produce a sketch of the decorations to be painted on the walls, drawn to scale: thus suppose the side of the room was fourteen feet long, and eleven feet high, which, of course, could be ascertained by admeasurement, it would be easy to reduce the feet into half inches by making a scale on the paper. By referring to to Plate XXXV. a scale of half an inch to a foot is drawn, and by this scale the whole subject is exceuted.

In order to produce drawings on paper, the painter must procure a drawing board, for the purpose of straining the paper he intends to draw upon; it should be about 12 inches wide, and 15 long. They can be purchased in almost every large town; but as many persons may not be able to procure them readily, a drawing board and square is introduced, Fig. 1. 2. 3. 4. Plate XXXVI.

DRAWING MATERIALS.

Plate XXXVI.

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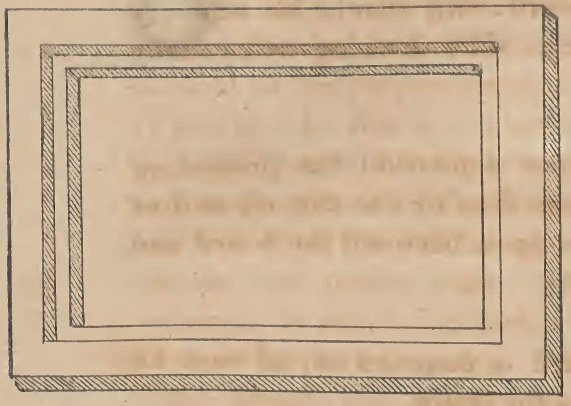

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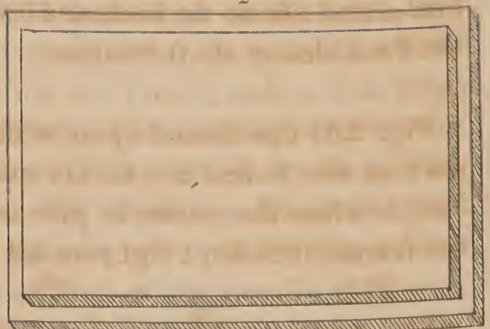

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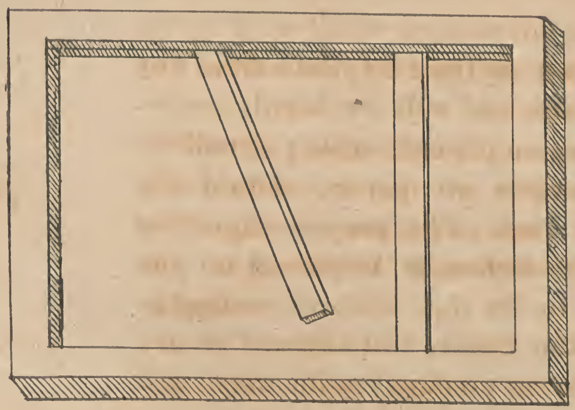

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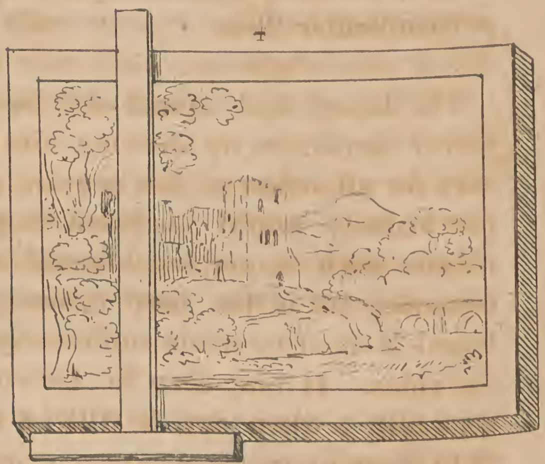

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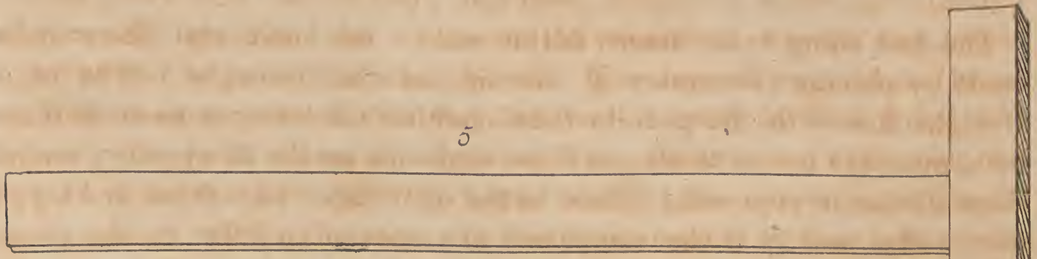


Fig. 1. is the frame for holding the board: this should be strongly made, and about an inch and a half thick. The drawing will convey the best idea of its formation.

Fig. 2. is the board upon which the paper is placed; the projecting part of the board is exactly even with the face of the frame; and of course when the paper is pressed at the edges, between the board and the frame, it is kept tight on all sides.

Fig. 3. shews the way in which the board is fastened at the back by two pieces of wood, inserted in grooves in the frame.

Fig. 4. shews the front of the board, when the paper is properly strained, with a square laying upon it, properly placed for drawing perpendicular lines.

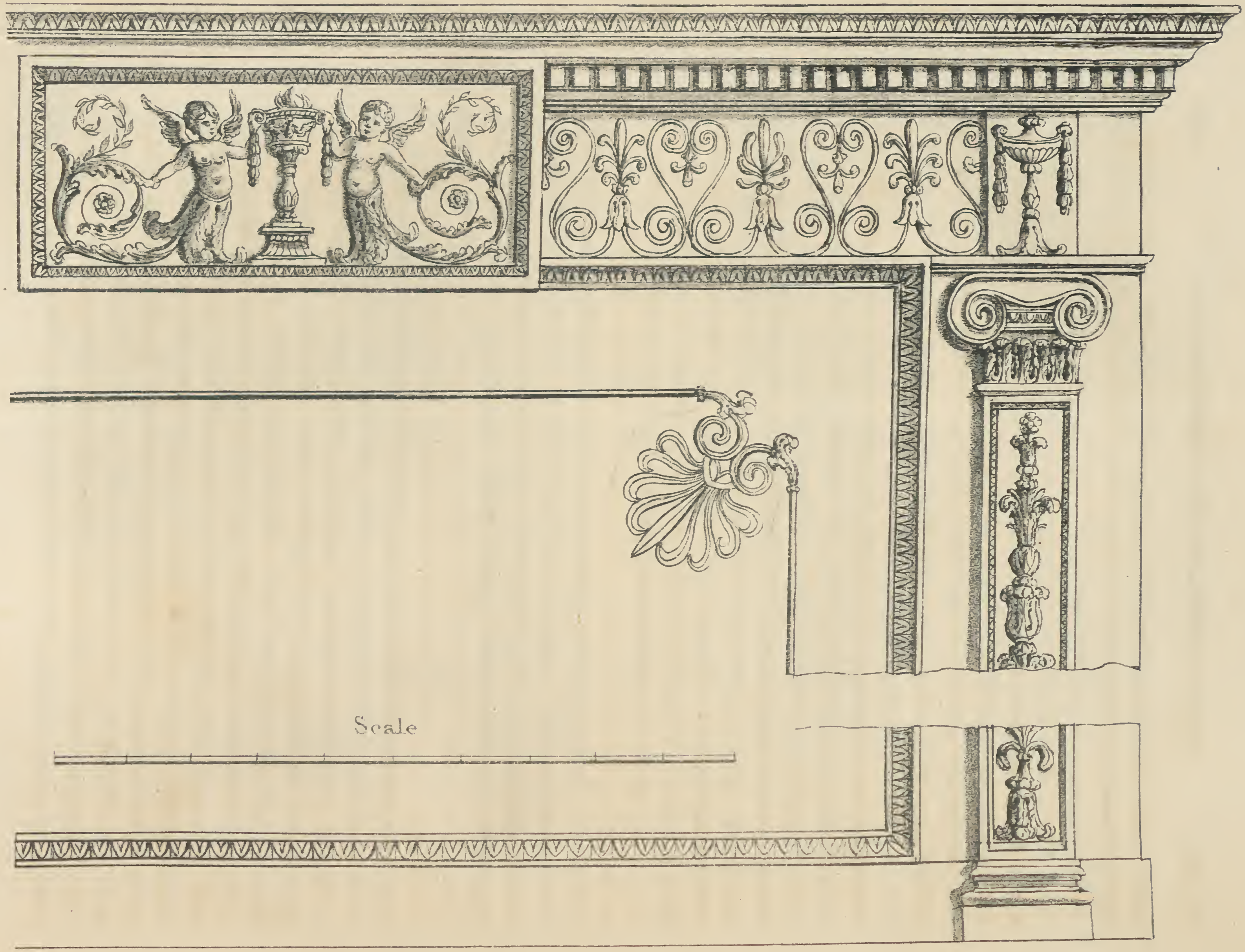
The board and square can be procured at little expense from any clever carpenter, by shewing him this plate, and will be highly necessary for all subjects that require patterns on a small scale; it will be particularly useful in producing landscapes on paper, should the painter wish to employ himself in that way. The proper paper for colouring on is the hard drawing paper: before it is placed on the board it must be made sufficiently damp to lie flat, without curling at the sides. It may then be fastened in the frame, and allowed to dry gradually: when dry, it will be found to be strained quite even, and fit to draw upon.

The first thing to be drawn is the scale. An horizontal line may be made by placing the square at the side of the frame, and drawing a straight line with the pencil: then opening the compasses to half an inch, measure ten or twelve of these divisions on the line; every one of these divisions represent a foot in the drawing. The room is 14 feet long, consequently if the compasses are opened to 7 feet on the scale, twice that length will give the base line of the room. This must be marked on the paper, and the line drawn with the square. The perpendicular line, at the side, is 11 feet. These lines repeated on the opposite side, will give the square of the side of the room. The plinth is twelve inches high: this must be measured on the scale, and marked on the perpendicular line. The space left to be painted will be 11 feet by 14: this is too large a space for one panel, unless it is filled by forming a square sunk panel, and drawing the arabesque bordering and angle pieces in the recess. The square is formed by measuring one foot from the outline on every side; the edges are chamfered, and may be two inches wide. The inner square, upon which the border ornament is run, is six inches from the outline of the panel; this must likewise be drawn square. Then place the rule diagonally on the angles of the square, and it will give the true centre, and likewise the proper line for the centre of the angle pieces: each of the angle pieces are 9 inches long. Having got the true admeasurement, rub out the pencil lines with a piece of bread (this will be better than indian rubber, as it will not quite erase the lines, but leave enough to shew the marks, nor is it so liable to tear the paper;) then draw the whole with a pen and indian ink, taking care not to have it too black.

For the production of patterns in colours it will be necessary to have a box of water colours, with camel-hair brushes. These colours will be found very useful, as tints may be formed upon paper to any depth, and their effect ascertained much easier than with the common colour.

In the subject under consideration it will be necessary to mix up a tint of fawn colour, by rubbing upon a common white plate a little yellow ochre and indian red; and then mixing a sufficient quantity with water, go over the whole of the drawing, except the bright light of the edge of the sunk panel. The largest camel-hair brush must be used to spread this flat tint, and it must be well filled with colour. Begin to colour the drawing from the top, and take care not to go beyond the outline. The lower edge of the colour must always be kept wet. When the colour in the brush begins to flow less freely, fill it again, and proceed thus till the whole is covered with one flat even tint. What colour remains on the drawing at one corner may be taken off the paper by washing the brush and pressing out the water

Plate XXXVI.



ETRUSCAN STYLE.

From Carlton House.

between the lips, and then taking up the superfluous colour. The paper must be quite dry before any other colour is laid upon it.

The next tint required will be the dark edge of the sunk panel. This must be mixed with a little indian red and blue to the tint required: it will be easy to colour over this small space. The lines and the angle-piece are tinted with vandyke brown, and the light edge with a very light tint of yellow ochre only.

Having drawn the pattern to scale of one side of the room, there will be no necessity for drawing it on the others. If the chimney projects it will, in general, be better to draw three small panels on that side of the room, or if the painted decorations at all interfere with the bell ropes, or other furniture decoration, it will be better merely to draw the lines as if it was one large panel, letting the angle-pieces come in the recesses, to correspond with those on the flat side of the apartment. The same means may be used on the side where the windows are placed, that is, by painting as if it were one large panel, with the space for the windows cut from it, as it would be useless to increase the number of panels and angle-pieces only to be covered with the drapery of the window curtains. In the admeasurement of the divisions of the panels of the room, the same means must be used as in drawing on the small scale. The perpendicular lines must be obtained by means of the plumb-line; and the true horizontal line, or correct right angle, formed as before directed.

Plate XXXVI. is part of the inner hall at Carlton House; the apartment was 25 feet square, 17 feet high, and illuminated by a light from the centre of the ceiling. This style of decoration is not much used at present. The cornice was plaster, the freize, pilaster, &c. painting, in order to give the ornament more at large, only part of the length and height of the side of the apartment. The scale is introduced so that any student wishing to give the whole can easily produce it.

It would be a useless repetition of the preceding instructions to shew the way in which the admeasurement to scale is made upon the board.

The ornaments have all been produced before. The admeasurement of the volutes in the capital of the column will be found in Plate XXXI. The figures in the centre piece will be mentioned in a future chapter.

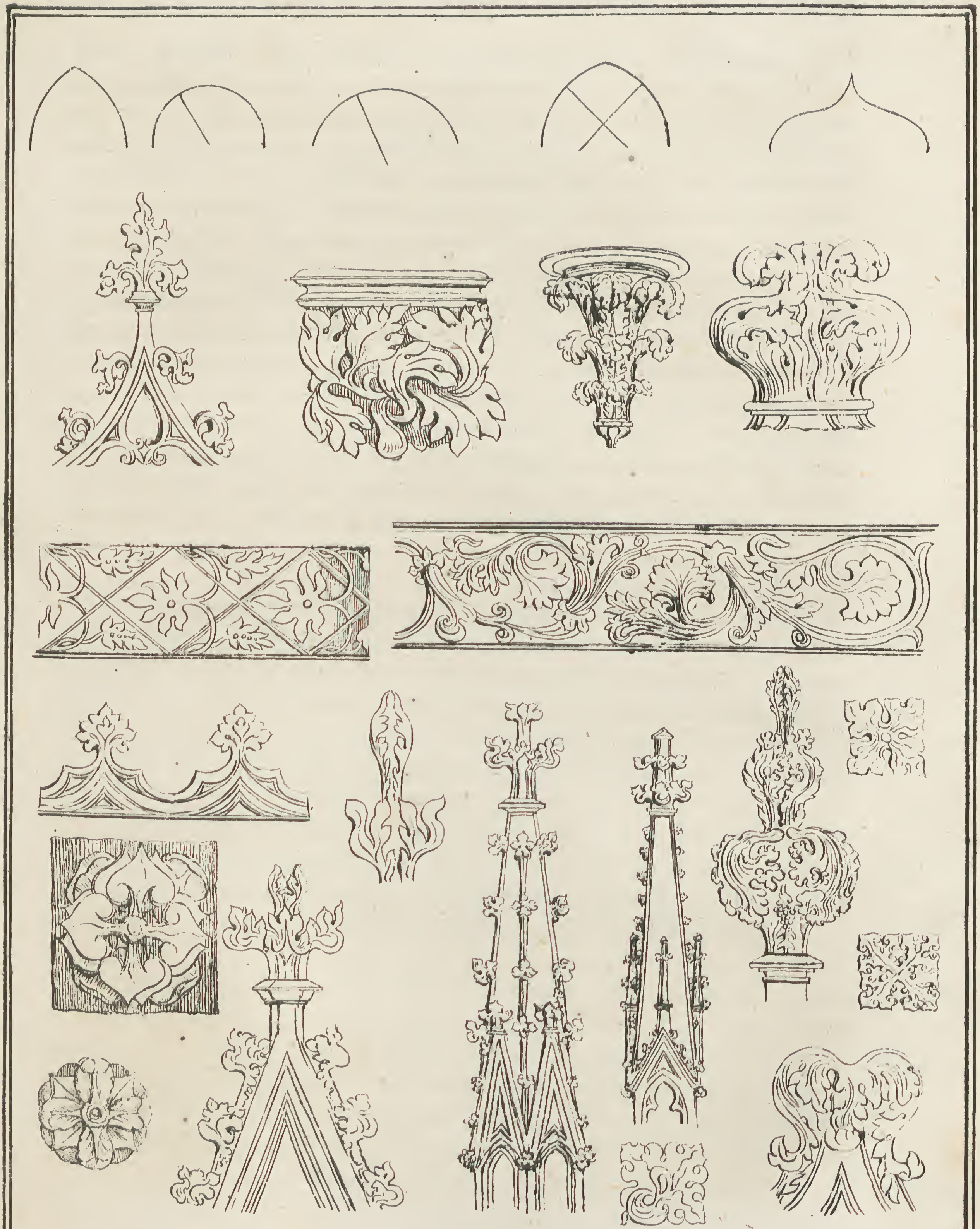
Plate XXXVII. contains a variety of Gothic ornaments, which it is necessary the painter should be well acquainted with, and able to execute in large before he attempts to decorate a room in any style of Gothic work. The upper row of figures are arches: the first is called the lancet arch; the second the semi-circular arch; the third the segmental arch; the fourth the broad-pointed arch; the fifth the ogee arch.

The lancet arch is formed by sticking two segments of circles from points, on a line at an equal distance from each other, in the same way that they are struck to erect a perpendicular, see Fig. 1. Plate XXXI*. The formation of the semicircle, and the other arches, will be easily understood by the plate. The line attached to each figure represents the leg of the compasses, and shews the centre from which the arches are drawn.

The other figures contained in this plate are the ornaments required in the different styles. These may be executed of any size for practice; but it will be better to paint them, in the first instance, as large as the board will admit, in black and white, as directed in arabesque ornaments. The great beauty of Gothic work is its regularity, and it requires very correct drawing. Thus the first figure on the second row is the upper part of an ogee arch, forming the canopy of a Gothic niche. To produce this correctly, a perpendicular line must be drawn in the centre, the height of the whole figure; then the part of a circle, forming the upper part of the ogee, drawn on each side of it. The inner lines are drawn from the same centre with the compasses a little more extended. The ornaments in the spandal, if required to be very correct, must be drawn with the compasses; but such great nicety is not required in painting: it can be produced sufficiently correct by the eye, provided points are correctly placed before the lines are formed. The ornament at the top of the canopy is called the

GOTHIC ORNAMENTS.

Plate XXXVII.



finial. Several others will be found in this plate. They must all be drawn with great spirit, and the light and shade first be painted broad and massy; the markings for the fine work in both must be painted when the light shade and middle tint are dry; in all cases it will have a good effect to let the light be in a subdued tone of colour, as that will allow sparkling touches of a brighter light to be applied on any prominent projection. The small figures that are on the outline are called crockets; these are formed in a variety of ways; sometimes pointing downwards, as in this figure; others pointing upwards, as seen in the part of the niche, and the ornamented pinnacle in the lower row of figures in this plate. When there are a great number of crockets required, it will be advisable to draw one very correctly on card board, and cut it out according to the outline with a penknife. The card can then be placed on the line at equal distances, and the outline of each crocket drawn with the greatest accuracy, by passing the pencil or crayon round it, letting the pencil touch the edge of the card in every part.

Whenever the decorative painter is called upon to give a design for the interior ornament of a Gothic room, the first thing that will claim his attention will be the style of architecture of the windows. Having observed whether they are lancet shaped, pointed, or ogee, all his design for the room must be in accordance with them. In every style of Gothic embellishment, the painter should always keep in mind the remark of a very celebrated antiquary and architect, "that Gothic buildings rejoice in height." And it is the business of the painter and designer to keep this in mind, if he is ever called upon to decorate a low room in this style, by so dividing the compartments that the arches are not too wide apart, and in consequence look broad and low.

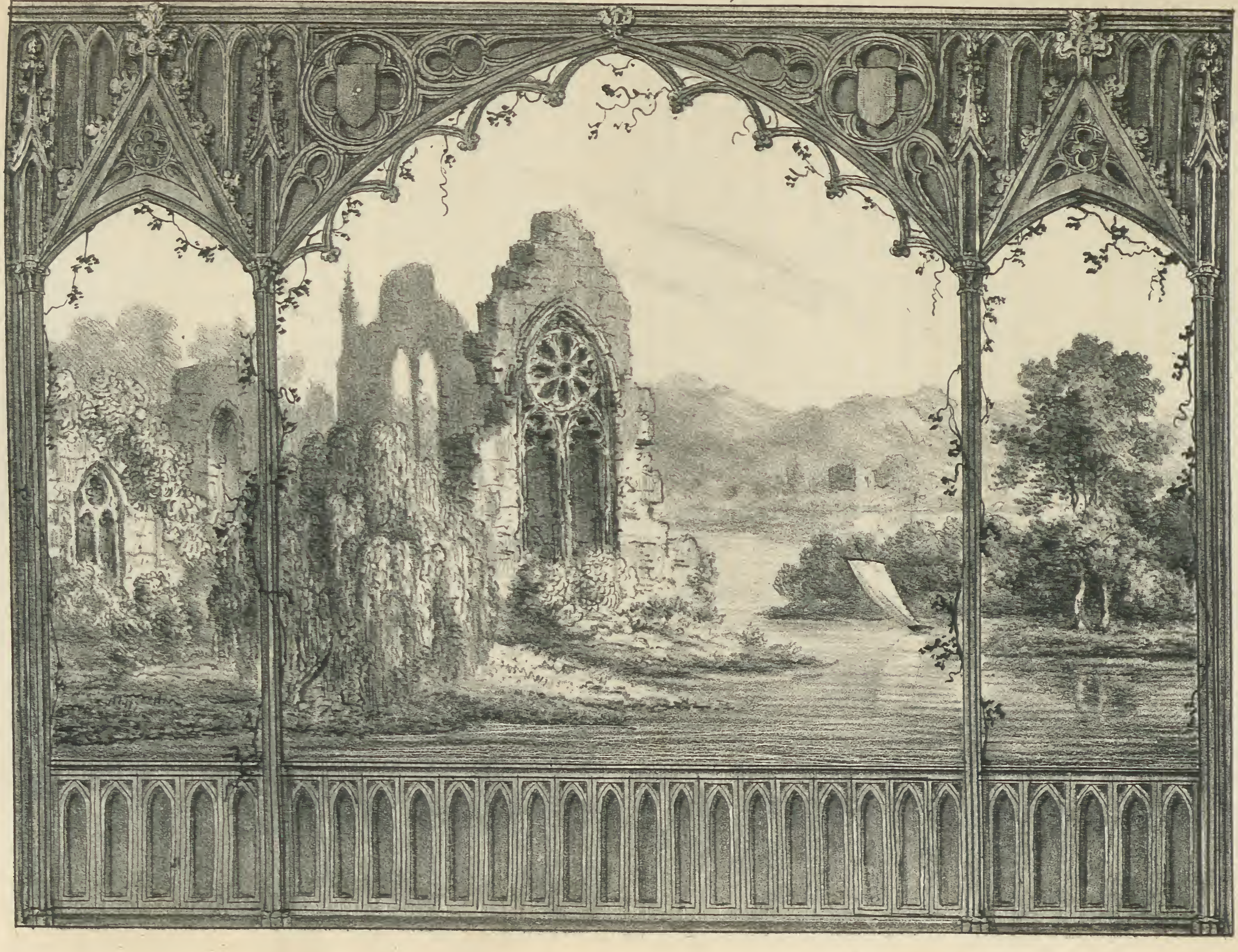
By referring to Plate XXXVIII. the student will find a design for one side of a low apartment in the Gothic style. The space to be painted on is supposed to measure 17½ feet in length, and 13 feet in height. The drawing is made on the scale of half an inch to a foot. It may be proper to remark here, that in sending in designs to an employer, it will always be desirable to have them rather on a larger than on a smaller scale, as the drawing will be much easier made, and will look of more consequence than a small drawing, to those who are not acquainted with the difficulty and trouble of drawing on a small scale.

Having drawn the square of the side of the room on paper, according to scale, proceed to divide it into panels: the width of the two small arches is 3½ feet; these must be marked by drawing feint lines directly across the square; on these lines the admeasurement of the heights of the various ornaments must be marked. The line parallel to the base line is two feet and a quarter from it: this space must be measured on the two upright lines. The height of the columns, including the capitals, from this mark, is 7½ feet; leaving a space of 3½ feet for the work above them. When the admeasurements are all correctly marked, either on the paper by the reduced scale, or on the wall the actual size, the centres of the three great divisions must be marked on the top line on the paper; they will be easily found by the compasses, and on the wall by measuring the distance with a string, and folding it in half: of course it can be done by admeasurement if the painter pleases to take the trouble, but the sooner he gets rid of the necessity of using figures, on any subject, the better, as his mind will be more free to proceed with the subject before him. From the three centres mark the space for the finials, and this point will shew the termination of the gable over the arches.

To find the springing of the small arches on the first line, shewing the centre, mark the height they are to appear; then, opening the compasses, set one leg on the mark for the top of the column, draw a curved line that will pass over the mark in the centre; then, removing the compasses to the opposite side, commence from the top of the column again, and let this line intersect the line drawn before at the centre, and the arch will be formed. When doing this on the wall use a string instead of the compasses, by fastening a loop to the portcrayon; and finding the length of string required to form one side of the arch, fasten it to the handle of a brush or a nail, and let one person press the stick or nail against the wall, while the painter, straining the string, describes the curved line to form the arch. The large arch is formed

Landscape in Distemper

Plate XXXVIII.



in the same way, by taking different centres and a longer sweep. When the painter has marked the subject thus far, he has got, if the expression may be allowed, a correct skeleton of his subject, and may begin painting.

As the Gothic panelling in the interior of a chamber is usually dark oak, the ground or middle tint of the subject under consideration should be a light reddish brown, formed with whiting and burnt umber. The whole of the Gothic design may be filled in with this colour, as flat as possible, of course leaving the space uncovered on which the landscape is to be painted; and likewise marking the points of the centres, &c. with a touch of vandyke brown, so that the trouble of finding them may be avoided when the ground colour is dry.

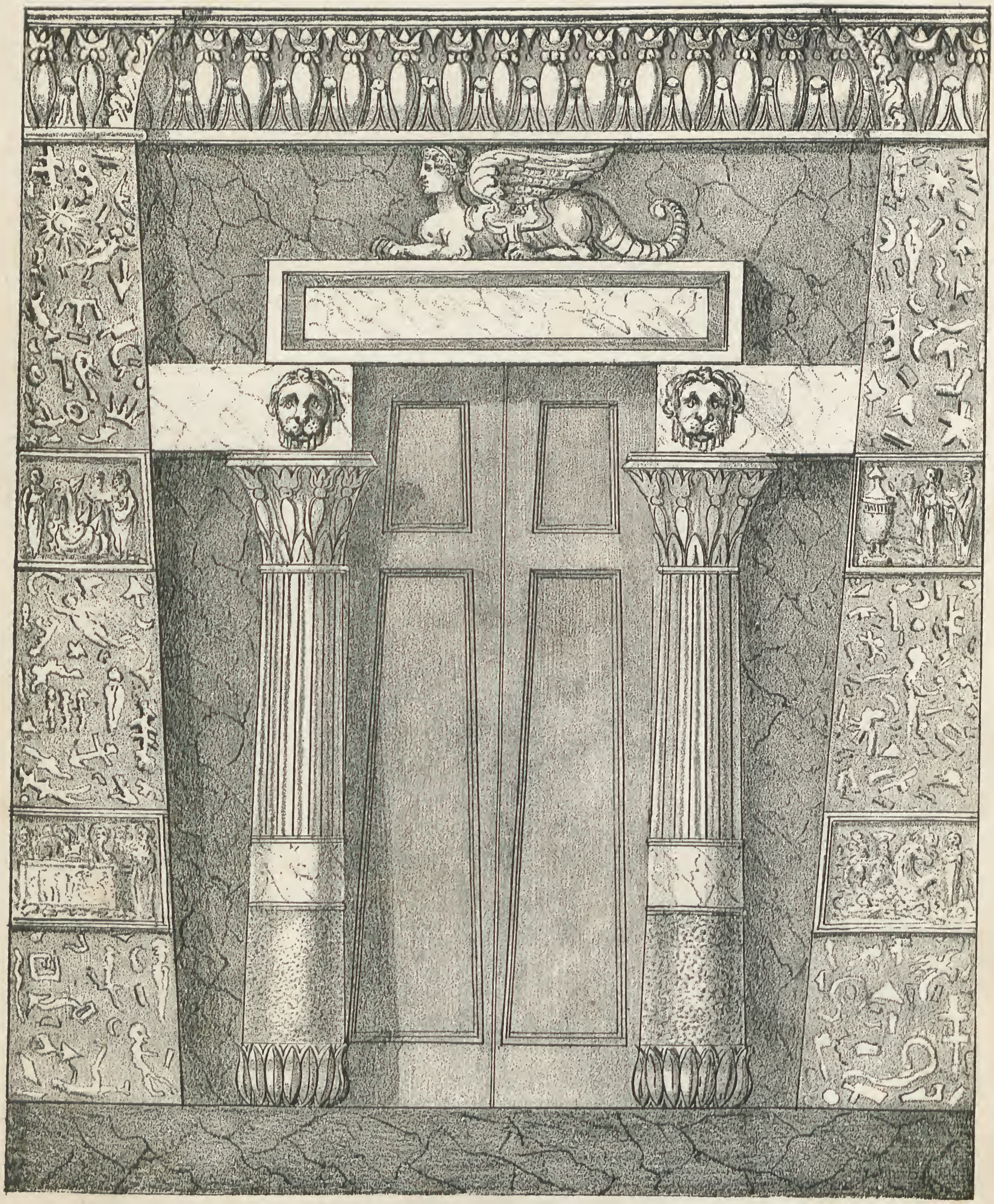
On this colour the painter will now proceed to draw the different mouldings, commencing from the top; then drawing the outline of the three finials, the gable, and the crockets, taking care that the line is fine, though distinct, towards the light; and at the same time dabbing in the shade coarsely, but with effect, on the dark side.

The angular spandal over the arch must now be drawn, by keeping the inner lines parallel to the outline; a small circle drawn in the centre of this figure, touching the sides, and a quart foil drawn within it, should be drawn with a feint line; and, at a regular distance from it, double lines should be drawn very thin, though sharp, towards the light, and bold and spirited in the shade. The crockets should be drawn at equal distances from each other, and as nearly alike as possible. When there are a great number to be painted, it will save a great deal of time, and add greatly to their correctness, by drawing one the proper size on a card, and cutting it out; then by placing the card on the line where the crockets are to be painted, run a white crayon round the edge of the card, and the outline of the whole of them will be sure to be alike. It is unnecessary to point out every line of this subject; suffice it to say, that the whole must be drawn with vandyke brown, tempered with whiting, to form a tint much darker than the ground, which in this, as in all other subjects, will form the middle tint. The light must be umber, yellow ochre, and whiting, mixed together, to form a tint as light again as the ground. With this colour the parts in strong light must be painted; and after the whole is got in light shade and middle tint, the more projecting parts may be touched in various places, to give a sparkling, showy effect, and the deep shadows strengthened with the darkest touches of vandyke brown.

Plate XXXIX. is the side of a room in the Egyptian style of ornament. Only large apartments look well in this style of decoration; the columns and panels are all too massive for small rooms, and if done on a small scale they look lumpy and diminutive. This style is well adapted for an entrance hall, library, or museum.

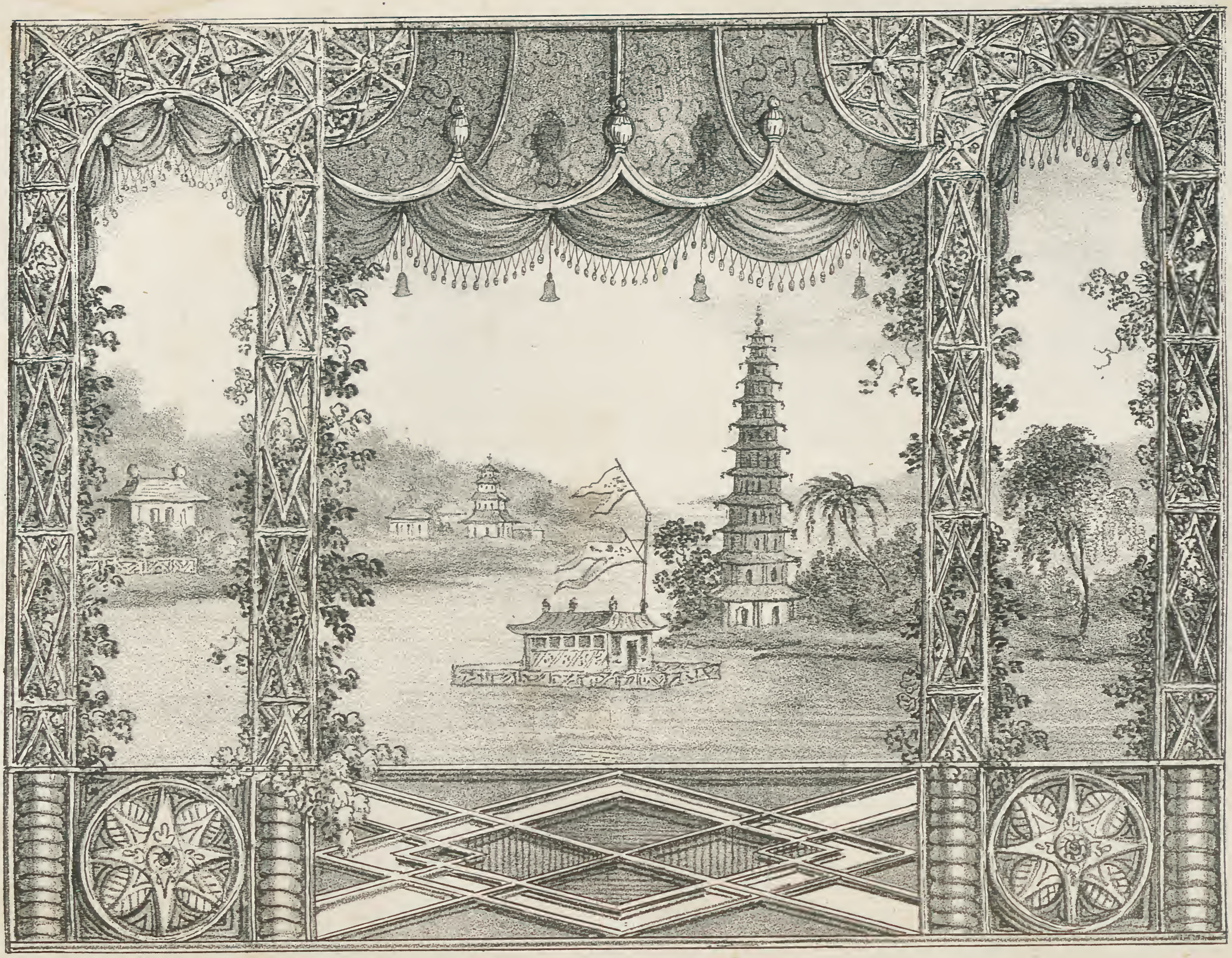
The example under consideration is taken from the beautiful specimens of ancient interior decoration, published by Baron Denon. The painter who can draw the Gothic design to scale, and set it out on the wall of an apartment, will find but little difficulty in executing this. It must be commenced by reducing the space to be painted on to scale, and the larger compartments accurately measured on the base and upper lines. The plumb-line will be found particularly useful in this subject to produce the long perpendicular lines. The slanting projections or pilasters must be measured on the plinth from the perpendicular lines, on each side: the decrease in their size, towards the top, must likewise be measured from the upright lines. A perfectly straight line, of any length, may be produced by the chalk line.

Having obtained the larger divisions correctly, proceed in the same way to set off the ornaments in the panels. The small columns are verd antique, with white marble or gilt capitals; the large pilasters are porphyry; the tablets upon them, containing hieroglyphic figures, are white marble, so is the block on which the sphinx is seen; the sphinx and the lion's head are bronze. The flat ground of the whole is a light salmon colour. It would only be repeating the directions already given to state the way in which every separate ornament is to be produced. Porphyry and verd antique will be found in Plates XIX. and



Egyptian Decoration.

Plate XI.



CHINESE DECORATION.

XXI. The bronze ornaments are first painted in a dead colour, middle tint of king's yellow, blue and black; the shade is black and red; the strong light is king's yellow, and a little indian red.

Where the work is required to be particularly well executed, the bronze may be got up in colour as well as possible; and the strong lights, when quite dry, may be sized very thinly, and some bronze dust, which can be purchased at any colour shop, powdered upon it. This metal must be used very sparingly, and only in the strongest projections; it has a most beautiful effect if used with judgment. The landscape in the panel over the door will be noticed in the next chapter.

Plate XL. is a Chinese apartment. Unlike the Egyptian style, the Chinese decoration is best adapted to small fancy apartments; and if ever used to advantage it is in boudoirs, conservatories, fishing houses, and rooms devoted to summer amusements.

The specimen in the plate is supposed to be a room looking towards a lake, the windows and viranda all in the Chinese style. The painter who is employed to give a design for this apartment, will of course be careful to let his decoration accord with the architecture; so that the whole may be alike. The side of the room seen in the plate shews an open trellis work of bamboo, forming the divisions for three open panels, shewing a Chinese landscape in the distance. The drapery is supposed to correspond with the drapery of the windows, and thus the room has a light airy effect, as though open on all sides. The bamboo is easily painted when it is drawn in the proper fret work. The middle tint is yellow ochre and indian red; the shade, venetian red and black; and the strong light, king's yellow, a little red, and whiting. Let the knots and joints in the bamboo be kept free and natural, and a little varied in size. The ground for the fret work at the bottom may be a light red or cinnamon colour. The student, who has advanced thus far in his art, will now find that he must share his profits with the artist and draughtsman, or he must acquire sufficient skill in the art of drawing and colouring to produce the landscapes, &c. that may be required, by directing his attention to the principles of drawing. And as painting transparent blinds will more particularly require a knowledge of this art, the author will endeavour to lay down a few plain rules for the attainment of it; and the painter, whose hand and eye is already used to drawing and colouring the various ornaments that have come under his notice in this work, will find the study much easier than he may previously suppose: the certainty that so much depends upon his thoroughly understanding the first principles of this most delightful and lucrative branch of his profession, particularly if he wishes to become a scene, sign, or herald painter, will enable him to overcome the difficulties that always attend the first steps in the acquirement of a new branch of art or science.

Perspective is the art of representing all objects as they appear to the eye in nature, on a flat surface, agreeable to their real forms and distances.

If the student stands at a window, looking towards an open country, he will see the space of many miles through a single pane of glass; and if he was to lay on a thin wash of isinglass or gum water, he might, with a pencil, sketch on the window the true form of every object in its proper position, however distant, and if the eye was constantly fixed on one point the whole would be in true perspective; if the tracing was copied on paper, and properly coloured, the picture would be perfect, as far as correctness of drawing goes. Now it is evident that whether the glass had been between the eye of the spectator or not, the view would have appeared the same, and the air would be as much a transparent plain to the eye as the glass. It will be well, then, in all cases to suppose that you are viewing every object through a transparent medium.

In looking at a landscape we cannot see the ground upon which we are standing, unless we turn our eyes from the view we wish to represent: on the contrary, the view will commence at some distance from where we are standing, and the distance will be greater, according to the height of the place from which the spectator takes the

Plate XLII.

PERSPECTIVE.

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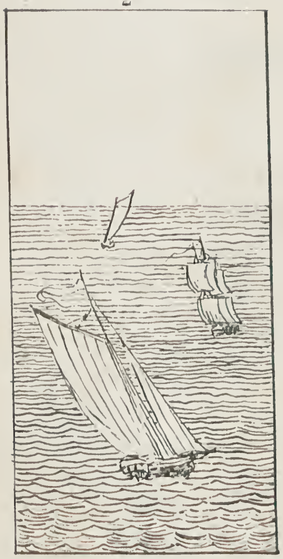

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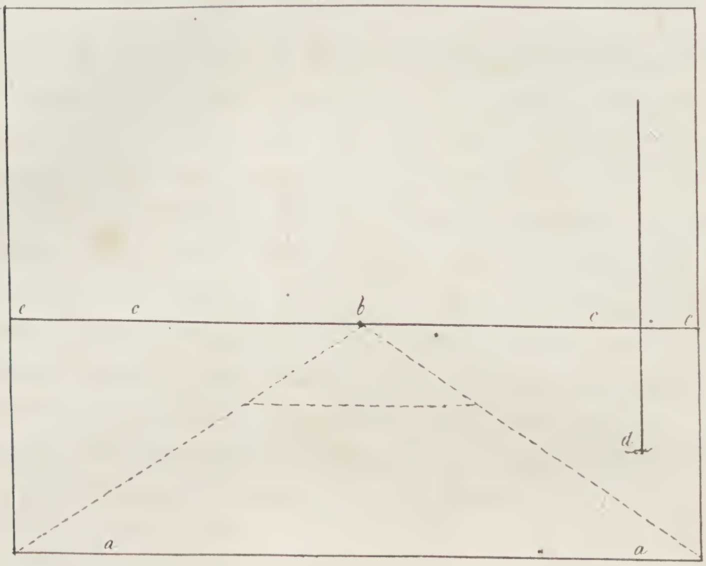

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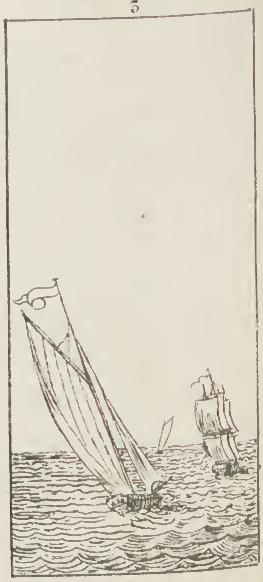

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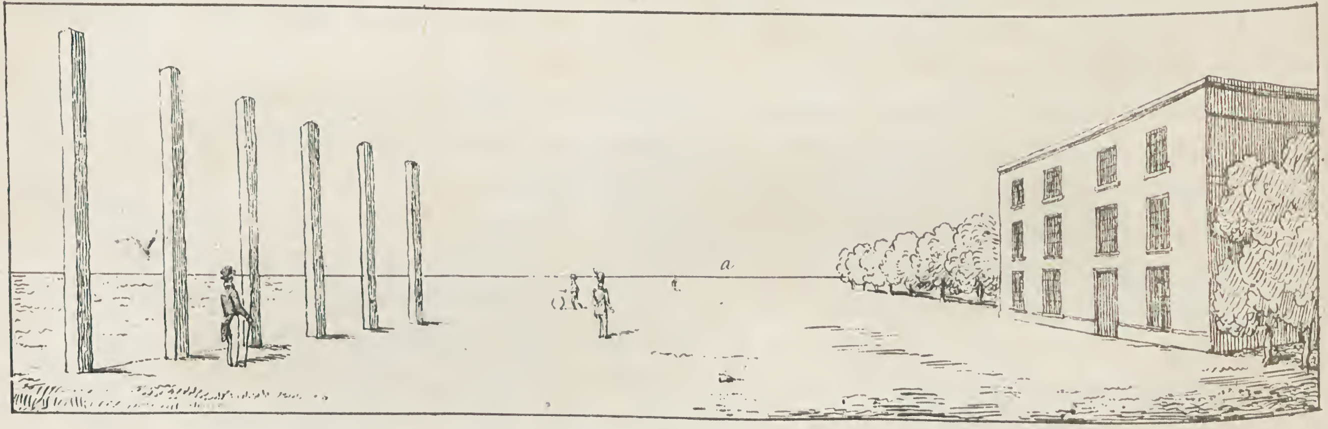

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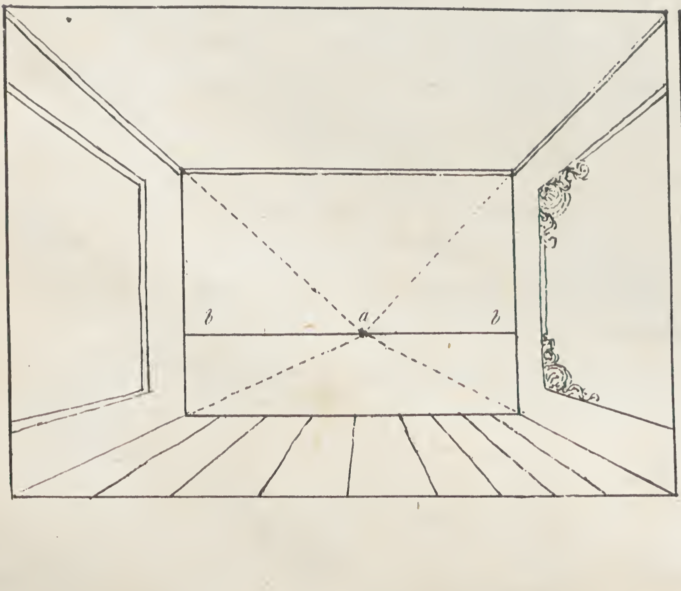

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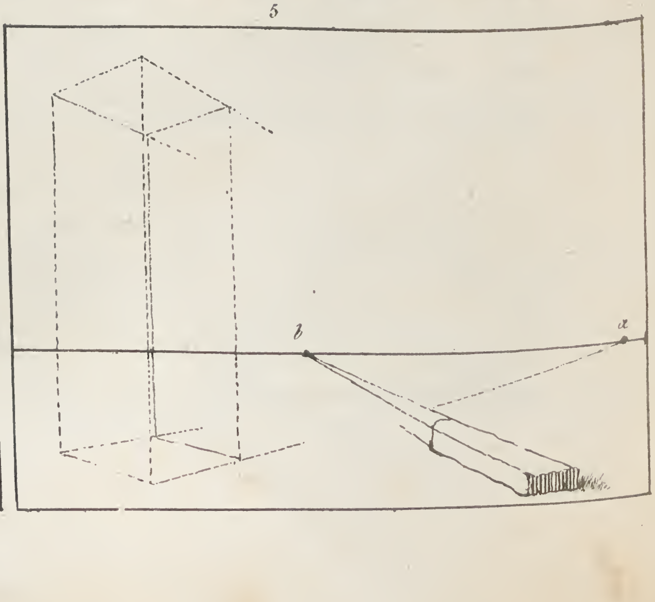


view. This will be clearly understood by referring to Fig. 1. Plate XLI. The man is standing on a level plain, with his face directed towards the landscape in the distance; the dotted line, running from his eye to the ground, shews the place at which the view commences. The place where he stands is called the point of distance, and the part of the view nearest his eye is the base or ground line of the picture.

In Fig. 2. the man is placed directly opposite the view. The dotted line drawn through the trees, poles, and the head of the figure, shews the height of the horizon; and if the student applies a straight edge to the top and base of the wall, or to the poles, he will find that any line drawn from them will cut the dotted line at the centre of the man's head. The dotted line is called the horizontal line, and that point on it, which is intersected by the lines drawn from the wall, is called the point of sight.

In whatever situation the person is placed, the horizon will always be the height of his eye. Thus in Fig. 3. a man is seen on a rock. The horizontal line is formed by the distant trees, but is still the height of his eye. Fig. 4. shews the effect of a low horizon. The line is still the height of the eye, though the figure is lying down.

In Fig 5. a house is drawn in perspective, and, in order to shew the point of sight more distinctly, the dotted lines are continued from the top and base of the building to the point of sight, which, in this subject, is placed near the edge of the picture. The horizontal line is the height of the heads of the figures, let them be placed on the same plane in any part of the picture, and however distant from each other.

The student will perceive from these examples, that all the lines in a picture beneath the horizon must run up to the point of sight, and all above the horizon run down to the point of sight. By keeping this plain rule in his mind he can never greatly err in sketching landscapes from nature; but no beauty of colouring, or neatness of execution, will atone for errors in perspective.

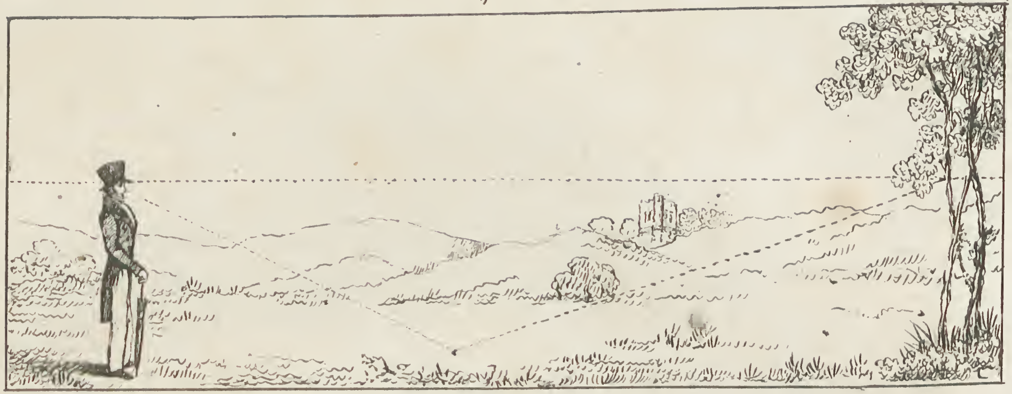
Some judgment is required in placing the horizontal line in a picture of the examples given in Fig. 2. 3. 4. Fig. 2. is the most natural, and therefore to be preferred to either the high or low horizon. If the high horizontal line is chosen, all the drawing will appear distorted: this is shewn in Fig. 3. where all the lines of the church, even the roof, are running upwards; while the small space left in the low horizon, Fig. 4. would prevent the objects being distinctly marked.

Fig. 1. Plate XLII. is a diagram shewing the lines and points at one view. *a a* is the base line; *c c* the horizontal line; *b* the point of sight; *e e* the points of distance; *d* the line of elevation or perpendicular line. All the objects that lie flat on the ground, or form part of the plain, such as walks in gardens, pavements of churches, ground plans of buildings, &c. are measured on the base line. But all objects that are at all raised, are measured on the perpendicular line, or line of elevation; which will give the true admeasurement of lines, in any part of the picture. Thus the line forming the angle of the house nearest the eye in Fig. 4. is the line of elevation. On this line the height of the door, windows, and spaces between them, are measured; and if lines are drawn from the points on the line of elevation to the point of sight *a*, they will give the heights of the windows, &c. in true perspective. The student will observe the inclination of the lines above and below the horizon as before explained. The poles opposite the house exhibit the same effect. They are all the same height if seen directly in front; but when put in perspective, it is only necessary to reduce the one nearest the base line to scale; this will then form the line of elevation, and a line drawn from the top and bottom of this post to the point of sight will give the heights of the whole.

Fig. 5. shews the method of putting a square block of marble in perspective. In this figure the point of sight instead of being in the centre of the picture, is on the side at *a*. This is called an oblique point of view, and it frequently happens that both the point of sight and the horizontal line are extended far beyond the picture. The effect of so placing it will be explained in a future subject.

PERSPECTIVE.

1



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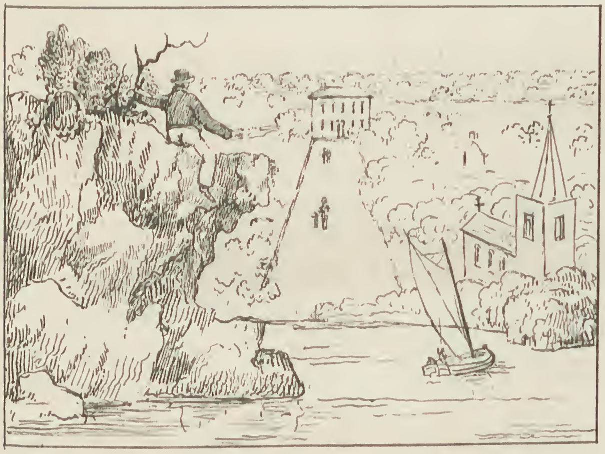

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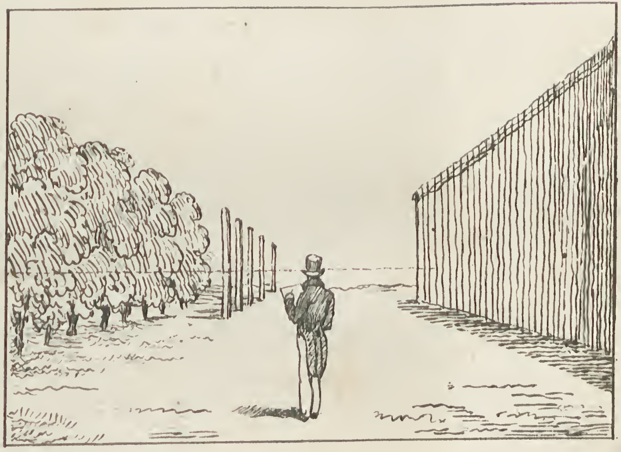

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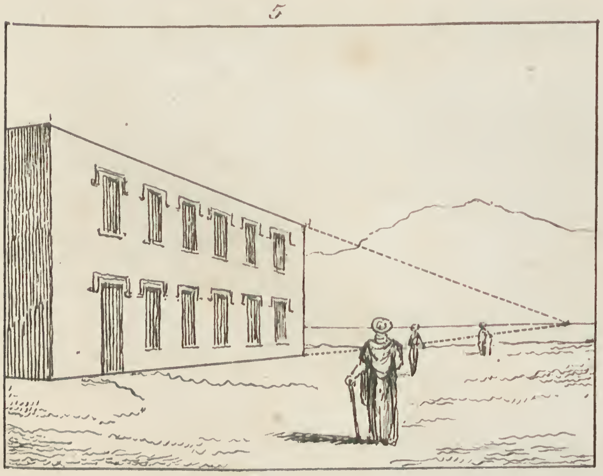

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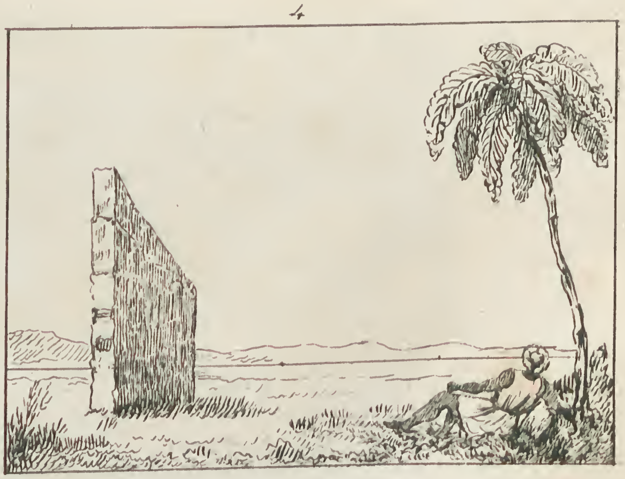


It has been observed that all the lines, in whatever part of the picture they may be, run to the point of sight; but in some cases where objects are thrown negligently down, such as trunks of trees that have been cut down, scaffold poles, &c. thrown on the ground, and other objects, they are placed nearly across the plain of the picture, so that it is impossible to make the lines terminate in the point of sight. This is the case with the square block in the example under consideration, the lines of which terminate in the horizon at *b*; and the point thus formed is called the accidental point. Accidental points may be taken out of the picture, but still be kept on the horizontal line.

Fig. 6. shews the interior of a room in perspective; *b b* is the horizontal line; *a* the point of sight. The student will perceive that all the lines in every part of the room terminate in this point.

It would greatly increase the bulk of this work if a regular treatise on perspective were introduced; it is only intended to point out to the painter the elements of this art, so that in any paintings he may produce he should be sufficiently acquainted with the rules to avoid any glaring errors: and if he requires further information, he will find every subject fully treated in a work on drawing, called "The Oxford Drawing Book;" which will likewise help the painter to a great number of picturesque views, well calculated for transparent blinds, landscape in distemper, scenery, &c.; but the brief instructions here given will enable any beginner to execute simple designs with ease and correctness.

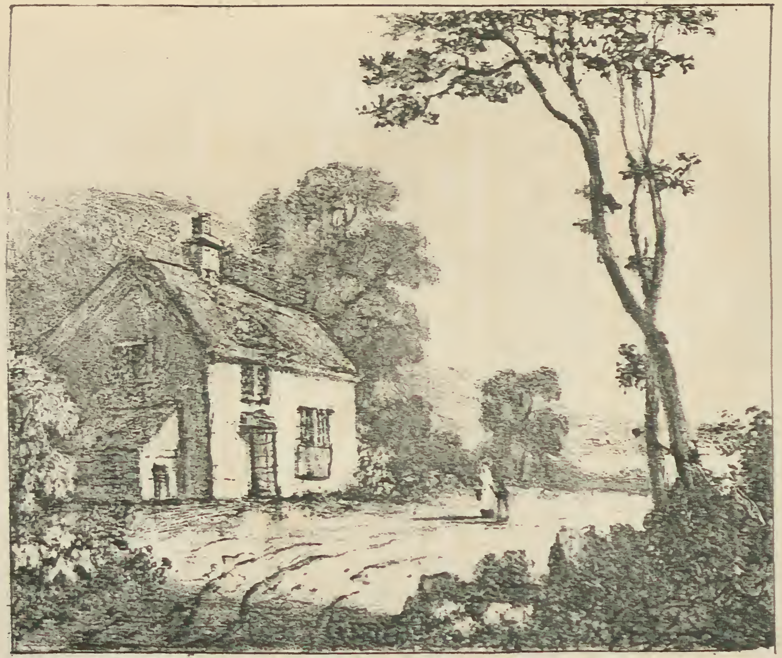
If the painter had not already become a tolerably correct draughtsman from copying the various ornaments placed before him in this work, there would be a necessity for his devoting some time to the study of drawing and light and shade, with pencil or crayon, before he began to draw and colour landscapes; but if he has acquired sufficient command of the pencil to delineate outlines correctly, he may, without any previous study, combine drawing and colouring of landscapes. In all the former lessons the student has been directed to practise in the same colours that the ornaments or other subjects are to appear in when applied in their proper places; but in this case it will be necessary to practise in the colours as prepared in boxes. The pigments are the same, only more care is used in washing and grinding them, and they are made to adhere by being ground in gum water.

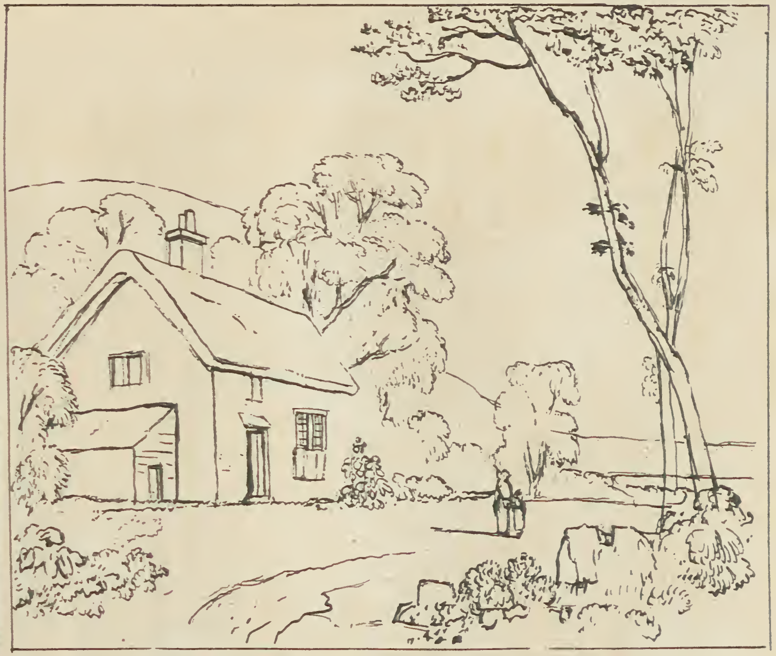
Fig 2. and 3. in Plate XLII. shew the effect of the high and low horizons in marine views. If the horizon is high, the ships in the fore part of the picture will appear to be under water; and the objects in the distance sailing one above the other. If the horizon is rightly placed, as in Fig. 2. the ships appear in their natural position, partly above and partly below the horizontal line.

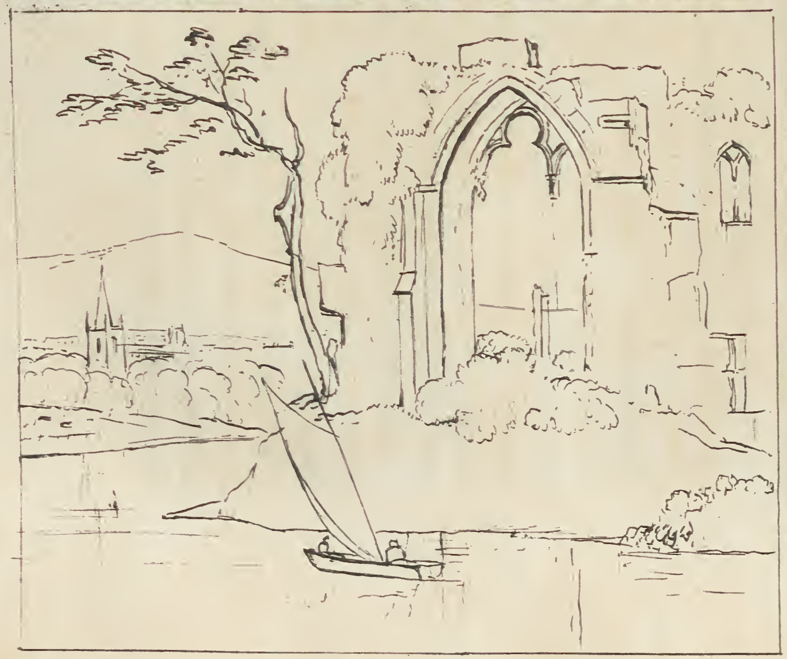
Plate XLIII. contains two simple subjects, drawn in outline and put in light and shade; it will be advisable for the student to draw them four times the size of the copy, and to put them in light and shade with neutral tint, formed with indigo and indian red, finishing in every part as if they were to remain without colour. In the following minute directions for colouring the larger drawings from these subjects, the student will find all the instructions that can be conveyed by words; but nothing but practice, taste, and judgment, will enable him to delineate beautiful landscape scenery with accuracy. The small drawings are not coloured, as it is impossible for a variety of print colourers to follow the original drawing with sufficient exactness to render the example of service to the student, and any errors they might commit would only confuse him.

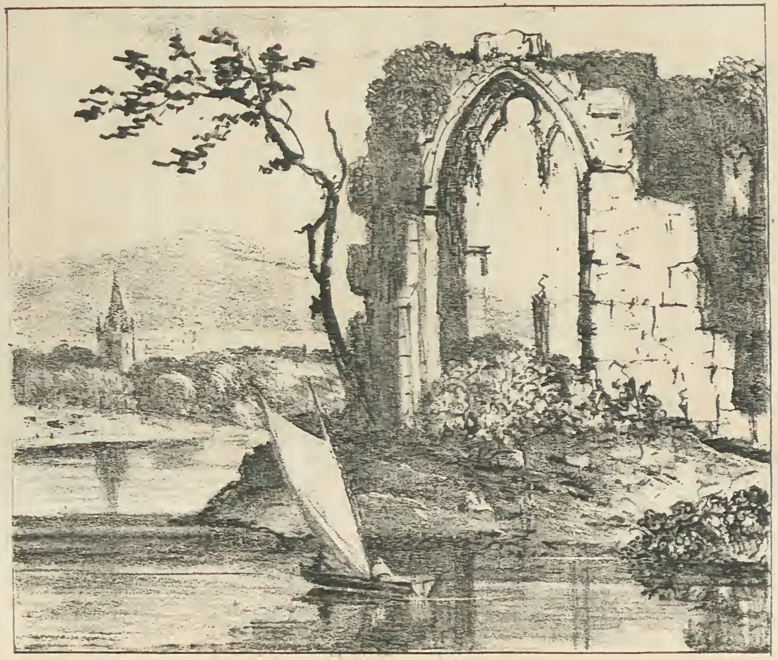
In drawing the outline of the cottage the student must commence with the upright line at the angle nearest the eye; he must then make faint marks to determine the size and situation of the different lines, according to the directions before given for drawing ornaments. Beginners in landscape generally draw the buildings out of the perpendicular, so that they appear to be falling; the student must, therefore, in measuring the height of the first line, be careful to place the points opposite each other, so that the line

Plate XLIII.









may be perpendicular. It is of great consequence to be particular in all cases to form this first line correctly, whether the painter is copying from pictures or from nature, as the correctness of the whole drawing in a great measure depends upon it.

The student who has attentively read the preceding observations will know that this is the line of elevation; the horizontal line in this subject is the line formed by the edge of the lake at the base of the mountain, and the point of sight is the head of the figure. When the first line of the cottage is drawn, if faint lines are drawn from the top and bottom of it to the point of sight, it will give the lines of the cottage in perspective; and if the height of the door and window are measured on the first line, and lines drawn from the marks shewing their distances from each other to the point of sight, they will also appear in true perspective. In this drawing, the dotted lines are left for the student's guidance; but, of course, though the lines may be applied, no traces of them must be visible when the drawing is completed: indeed when the rules of the perspective are thoroughly understood, which they will soon be by a practical application to a few drawings, they will be so fixed in the mind, that there will be little necessity for drawing lines on the paper, except for architectural subjects.

The student will observe, that the lines with which the building is formed are not hard continued lines, as if formed with a ruler; but are formed with a succession of broken lines or dots, so that they may be made to appear broken, or form masses of brick or stone at pleasure, which could not be done if the line was perfectly formed. Every part of a landscape must be drawn with freedom, with this light dotted line at first very faint, but strengthened either with the pencil or colour as the subject approaches to completion. The small mass of foliage at the end of the cottage must be correctly drawn, with a light rapid touch, as if drawing a continued line composed of the letter *m*. The mountain and the clouds must be sketched very delicately, but still taking care not to use the hard line. The marking on the ground must be drawn correctly, and likewise the stones at the side of the house; and the student will, in forming them, see the great use of the broken outline so strongly and repeatedly recommended.

Having made the outline of the drawing, the next step is to put it in light and shade, and colour it correctly; for this purpose the student must procure a white plate to rub the colours upon, and a little soft clear water in a cup or glass; on the margin of the plate rub a small quantity of indigo, lake, yellow ochre, gamboge, burnt sienna, and indian red. The student is already acquainted with the method of straining paper on the drawing board.

In colouring on paper or in distemper, it is best to commence with the sky and the extreme distance, which should be suffered to get quite dry before any of the parts of the drawing that touches them is commenced, otherwise the colours will mix and become muddy, without the possibility of remedying the defect.

The first tint for the sky is indigo mixed with a little lake. Mix up a sufficiency of the tint, according to pattern, to go all over the space that is to be covered; then, having one of the largest camel hair pencils filled with the colour, begin at the right hand corner of the drawing, and take a sweep along the top, after which fill the whole space to be covered by short strokes about an inch in length, till the tint is laid evenly over the whole. As it approaches the horizon the tint becomes lighter: this is done by softening the edge of the tint formed with indigo and lake, and by washing it with another brush dipped in clear water; the same means must be used if any light is left in the blue space for clouds. In order to introduce as much information and as many subjects as possible within the prescribed limits of this work, the subjects are drawn small; but it will be advisable for the student to draw them at least four times the size, and the directions are given under the idea that the drawings will be made upon a much larger scale than the copy. Having laid the flat tint of the sky, which will at first be found rather a difficult task, and only to be accomplished by keeping the brush full of colour, and taking care that the edges of the tint are not allowed to get dry before the whole space is covered, and when covered never attempting to amend or alter while wet,—should a quantity of the tint be left on the paper, beyond what is required to cover it, dip the brush in the water, and afterwards, squeezing it out, take up the colour with the clean brush.

The first tint being dry, mix a tint of indigo, lake, and raw umber, for the grey cloud; lay this on evenly, leaving a space for the lightest part between the cloud and the sky; soften the cloud at the edges with a clean brush, as before directed. The dark side of the cloud is lost in the tree at the end of the house, and as the tree is darker than the cloud, it will be of no consequence if the tint goes a little over the outline of the tree.

The distant hills are the same tint as the sky. The second tint on the hill is a little yellow, mixed with the tint to give it a greenish hue. The sky and back ground are now finished. The gable end of the house is put in shade with neutral tint, formed with blue and indian red; with this tint the dark shadow under the roof is laid in, likewise the windows, leaving the frames white; the chimney is put in shade with the same tint. When this is dry lay a tint of yellow ochre on the front of the house, at the edge next the sky, and then change it by adding a little red, and in other parts a little grey. It is this imperceptible change of colour on the surface of old buildings, that makes them such excellent subjects for picturesque drawings, and the effect will be easily produced after a little practice. These changes are effected while the colour first laid on is wet, so that they blend and soften into each other.

The colour of the road is formed with indigo, lake, and raw umber, in the distance; in the centre, lake and raw umber; and in the foreground, raw umber alone. These tints must be changed in due gradations, in the same way as those on the front of the house.

The grass in the middle ground, where the figure stands, is prussian blue, gamboge, and indian red. The grass and foliage on the bank, at the side of the house, blue and gamboge. The first tint on the tree is burnt sienna and indigo. The figure is coloured with lake and blue.

Observe, all the tints laid on in Fig. 1. are flat, without any attempt at shade; that is reserved for the finishing tints.

Fig. 2. is the same subject continued, and finished by adding the deep shadows. The sky will not require any touching; the distant hill, toward the bottom, is darkened with a tint of indigo and lake. When this is dry, the forms of the small trees are given with the same colour. The water is tinted with nearly the same colour as the sky, leaving a streak or two quite white. The trees are shaded with another coat of the tint first laid on them, and the darkest parts with indigo and indian red; the markings on the trees must be made with freedom, and in the first essays need not be particularly fine: nothing but practice will enable the student to produce highly-finished foliage. The cart ruts, in the road, must be produced by spirited touches of vandyke brown, and the trunk and branches of the tree may be touched, in the darkest parts, with this colour; the dark sides of the window frames and beam may be touched upon with this colour; the breaks in the plaster are likewise produced with a light tint of the same. This colour, as has been before observed, may be used for the lightest and most delicate tints of brown, and by being used nearly opaque will produce the darkest shadow, and is always useful in fore-grounds. The touches of red, and burnt sienna, shewing the bricks on the chimney, and the bright touches on the figure, will add greatly to the effect. When the drawing is touched up, to produce the same effect as the pattern, it is completed.

Fig. 3. is a view on the Wye, and would form a good subject for a transparent blind. There is very little perspective in this drawing, as the ruin of the castle, seen in the fore-ground, is seen directly in front, and is therefore called an elevation. The outline of the whole must be drawn very correctly, taking care that the line forming the distant mass is faint, and the trees, and other objects upon it, properly placed. The church, &c. in the middle mass of the picture, may be more strongly drawn. The reflection in the water must likewise be properly marked, and the whole correctly disposed, before any colouring is applied. The blue sky is tinted with indigo and lake, laid on as directed in the preceding subjects. The sky is begun to be softened off by adding water to weaken the tint, about the centre of the picture, and is left quite white at some distance from the horizon. When this is dry, a tint of indian red is laid on, commencing from the horizon, and softened till it is lost in the blue. The dark floating cloud is indigo and indian red, with a little raw umber. The town and trees in the distance, are coloured with a very light tint of indigo, lake, and raw umber; the trees in the middle mass, and their reflection in the water, with neutral tint; and the dark side of the round tower is likewise shaded with it: the reflection of the objects on the water will of course be the same colour. The bright sunny tints on the front of the tower are formed with yellow ochre, blue, lake, and burnt sienna, made to change and blend together. The sails of the vessel are yellow ochre; the boat burnt sienna. The water is a flat wash of sky tint towards the fore-ground, and left light in the middle of the subject. The reflections, where they are light or of a different colour, of course are left.

Having now subdued the whole of the white, and put the subject into colour, proceed to Fig. 4., where the drawing is put in shade, and finished, by touching on the distance, in various parts, with the same colour that it was laid in with. The church, in the middle ground, has a faint wash of yellow ochre; the side of the spire, in shade, is a light touch of neutral tint; the spire and trees are reflected very strongly in the water. The masts and rigging of the boat are marked with touches of vandyke brown or sepia. The stone rim is marked with burnt sienna, vermilion, and umber. The touches on the neutral tint are with various shades of the transparent browns. The light part of the water is tinted with indian red, which is softened off among the neutral tints.

Having given the contents of Plate XLIII. so much of our attention, it is hoped that the student will find his way sufficiently clear to proceed to more important subjects. The remarks on every part of these small drawings will apply to others; but it is impossible to do more than introduce the student to this delightful branch of the art. He will, when he comes to exert his powers, find that he requires still further instruction on every subject, and for them he must refer to more elaborate works upon landscape painting. The work before mentioned, called the OXFORD DRAWING BOOK, contains upwards of 100 subjects, taken from real views, all treated with the same minuteness of detail that has been attempted in Plate XLIII.; consequently it is scarcely possible to meet with any difficulty in perspective drawing or painting that is not fully explained. The following general remarks will be found to comprise almost all the instruction that can be conveyed by writing, without entering on practical examples.

In copying a picture or sketching from nature, it will, in the first place, be necessary that you call to mind the rules of perspective, and take a general and deliberate observation, to determine the relative situations of the principal objects, such as the height of the horizon, the nearest angle of the most conspicuous building, the whole width and height of the different masses of trees, or other objects, and their relative distance from the principal object, and from the base or sides of the drawing. Take care to begin all objects from the base line; those parts touched lightly will be sufficient to direct the eye to the situations of the subordinate objects until the whole becomes lightly but correctly sketched.

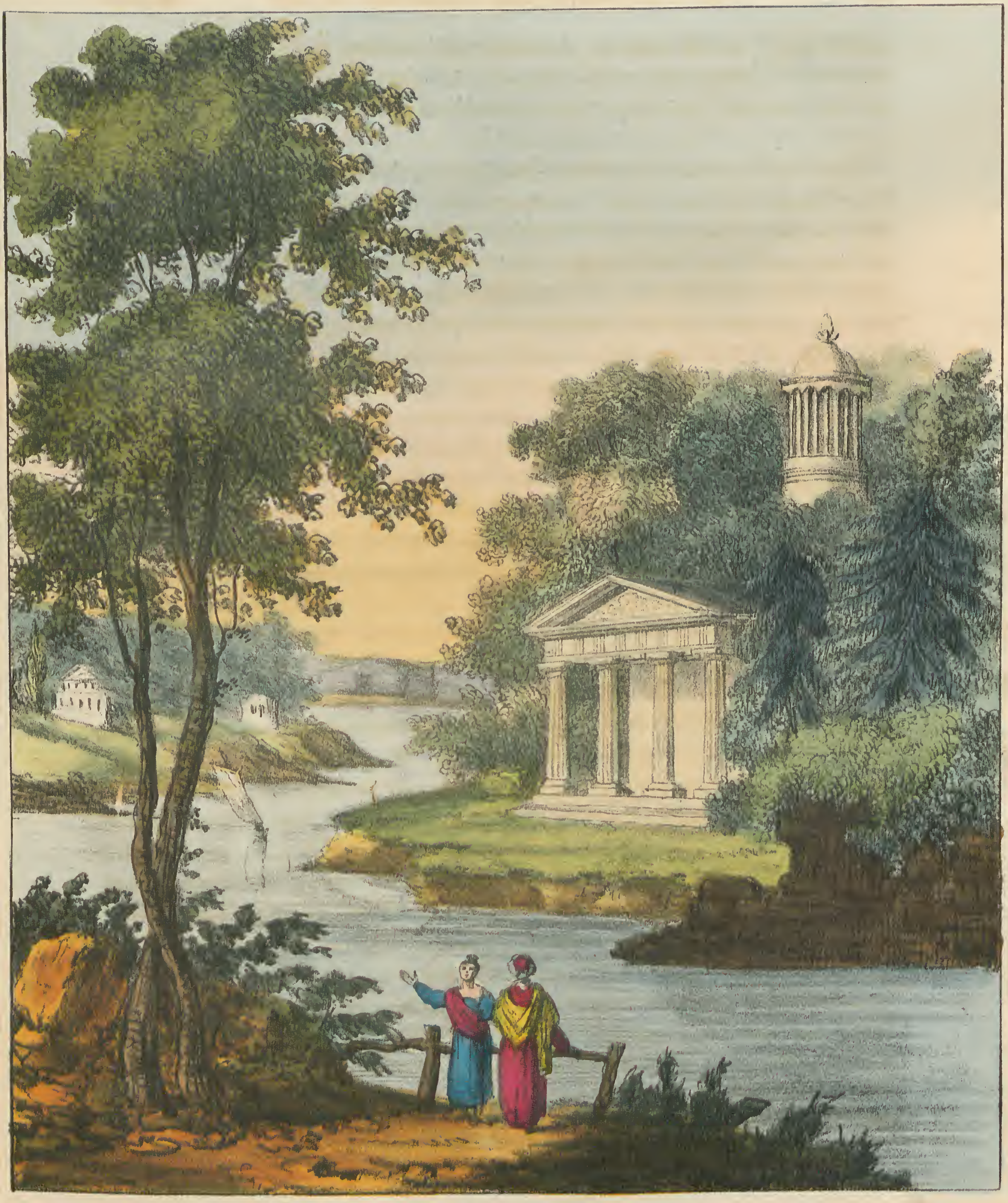
The student will find it of consequence to determine the situation of the leading points, by observing whether they are at half, one third, or one fourth part, more or less, of the whole length or breadth of the picture, or between any two principal points. For example, examine what portion of the picture the land takes, from the base line to the horizon, and it will probably be found to be about one-third the whole height: remark any variation to this, and that point may be correctly ascertained. And in the same deliberate way mark all the other remarkable objects.

The slight touches made on the paper or canvass to mark the situation of different objects, will not require great attention to drawing, though the more correct the better, as they are only so many points through which the pencil will pass when you proceed to minute outline; in doing which you must have constant regard to the proportion of one part to another, observing always what part is perpendicular, parallel, or on a level, with some other part already noticed, by a studied touch. It is an excellent observation of a practical painter, that "many objects in a landscape are of fixed dimensions, and should never be given contrary to their proportions." For instance, a brick, with the stratum of mortar, always measures three inches. This makes four courses in the height of one foot, or twenty-eight to the height of a seven-feet door; and though in picturesque drawings, whole courses of brick-work are seldom represented, yet the few that are seen ought to be the proper size. Steps are generally between the height of six and eight inches each, then three eight-inch steps would rise to the height of eight courses of brick. Sheds and out-houses are covered with boards called weather boards, which are seldom above ten inches wide from the edge of one board to the next, and more frequently six or seven inches, which should have due attention when finishing from memory sketches which may have been hastily outlined from nature, or when composing from fancy: it may be said that this is being too particular on such trifling subjects, but they are subjects upon which the humblest person is competent to form a judgment, and censure, if not attended to; and by attending to the admeasurement of parts of buildings, the eye becomes practised to accurate proportions, and can distribute every other object with facility.

After marking the drawing correctly, proceed to draw the outline; taking care to touch lightly, and in broken or dotted lines, so that they can be altered without rubbing out. The whole attention must now be directed to correcting and completing the form of each part, touching, with due spirit, on objects near the foreground, and receding towards the horizon with a light hand. Begin this part of the work by drawing the principal objects first, observing here the ease with which the detail may be drawn. After having secured the principal points, there will be nothing too high, or too low, too wide, or too narrow, or wrongly inclined or curved; all proportions will agree with the original, and the effect of the whole will be certain.

Plate XLV. is a composition intended for a transparent blind, but as it continues the directions on colouring it is inserted in this place, as a subject for a water-colour drawing. The mass of land in the foreground must first be sketched lightly with the form of the figures and trees. This sketch must be drawn as near to the size as possible, but yet left so light, and the outline sufficiently broken and free, as to admit of any alteration that may be required. When the drawing is more finished, the second mass must be sketched in the same way, taking great care to keep the building upright. The masses of foliage must be sketched with freedom, taking care to preserve the form of the outline, without caring for the markings of the different kinds of foliage: the distance must then be sketched very lightly. When the whole of the first sketch is finished, examine it in every part, to see if the masses, buildings, &c. are of the proper size; and if they are not, make them so. It is at this period of a drawing that corrections can be made without injury, and with little trouble; whereas if the student finishes one part before he has properly drawn the whole, he may have to do the whole again for that which would have been a very trifling alteration if done at the proper time. When the first or sketchy outline is completed, begin at the foreground again, and mark upon each object distinctly, taking care to keep the outline towards the light very thin, and the parts in shade strong and spirited. The distance, if the sketch is pretty accurate, will scarcely need touching, as it cannot be left too light. As in the two preceding drawings, the sky must be coloured first, by mixing a little prussian blue and lake: the latter colour should be used very sparingly, only just enough to take off the raw tint of the blue. The large brush must be well filled with colour, and the edges kept wet by making hatches or strokes along the top, about an inch in length; and when the space at the top is quite filled up, commence another layer of touches: these may have a little more water mixed with the colour, as it always gets paler as it approaches the horizon. The next layer should be done with water only, and

TRANSPARENT BLINDS.



washed towards the horizon, till the whole of the colour is absorbed. This must be suffered to get dry before any other tint is applied, otherwise the whole drawing will be spoiled.

A tint of lake is then laid upon the faint wash of the blue, and softened down to the horizon as before: when this is dry the board should be turned, and a wash of yellow ochre laid on, near the distant hills, and this should be so washed and softened as to blend with the delicate tints of lake. As this is intended to represent the cloudless brilliancy of an Italian sun-set, there are no floating clouds introduced; so that when the tints are laid on as directed, and suffered to get quite dry, the sky is finished.

The hills in the extreme distance must be tinted with a light mixture of lake and blue, waving it down towards the water, in which, with the same colour, let the reflection of the mountains be seen. The shade of the masses of trees, in the middle ground, is tinted with blue and lake before any other colour is applied.

The mass of the foliage, at the back of the temple, is tinted with bright colours, laid on towards the light, and the shade and markings of the foliage formed with neutral tint over it. The hatches or touches of the neutral tint must run in the same way that the branches are supposed to incline; and the whole should be kept airy and pendant.

The water is coloured with the same tints as the sky, and the dark shadows formed with neutral tint. The light ripple is either scraped out with a knife, or the small brush is dipped in clean water, and the lines formed with it that are to be taken out. Before they are quite dry, rub upon them with a little crumb of bread, or the indian rubber, and they will take the colour off the paper, giving a light sparkling effect to the water. The same means may be used to take out any lights on figures or other objects.

The tree, in the foreground, is first tinted with indigo and burnt sienna; the latter colour being used by itself at the edges. The markings of the foliage are formed with a neutral tint, composed of indigo and indian red: with this colour the dark side of the trunk of the trees is put in shade; the light side is tinted with varying tints of burnt sienna, gamboge, and indian red; the whole touched up, in the darker parts, with the darkest tints of vandyke brown. The figures in the foreground are coloured with the brightest tints of blue, lake, and yellow; the shade is vandyke brown.

Having, in a former part of this work, explained the theory of contrast, and the technical terms used when speaking of colours, there is little necessity for repeating them here. The student is aware what is meant by warm and cold, advancing and receding colours: and in colouring landscapes he will be careful to produce a good effect, by contrasting one with the other. Thus, in the subject before us, the brilliant red and yellow on the figures in the foreground are contrasted with the cool grey of the water. The same effect is produced by the touches of burnt sienna, on the edges of the trees coming against the blue sky, the contrast of colour giving value to both.

When the student has practised the few examples here given three or four times over, and has been careful to abide by the directions for proceeding, step by step, according to the system pursued in the plates before him, he will find himself competent to colour the six subjects contained in Plate XLV. without coloured patterns. They are all easy subjects, drawn in this shape as patterns for transparent blinds; but it would be advisable to practise the whole of them in water colours before applying them to that purpose. As the last three subjects have been so amply detailed, it will be needless to point out how these may be coloured, particularly as they will be adverted to in a following chapter.

Landscape in distemper differs both from oil colours and those used in water on paper, as, like oil, the pigments are used opaque; but greater skill and judgment are required to give them proper effect, as the colour cannot be accurately ascertained till the work is dry, and it requires boldness and decision, as the picture cannot be well amended, after the sky and distance are painted, without running a great risk of spoiling the whole.

The painter, who has studied water-colour drawing with effect, will find his path made easy to painting landscape in distemper on walls, or producing scenic decoration. It is presumed that the painter, during his apprenticeship, has had some practice in colouring walls in distemper; it will, therefore, be superfluous to say that, before any colour is laid on, the walls must be well scraped, washed, and sized. When this is the case, the decorative painter may commence by procuring a quantity of good whiting, in a clean pan, which should be covered with soft water, some hours before it is intended to be used: it will thus become thoroughly damp and dissolved in every part, so that there are no lumps. If the work is very particular, it will be better to get a pound of parchment cuttings, to which add three quarts of water. If the cuttings are allowed to boil about two hours, the water will be reduced one-third, and the size will be sufficiently strong for any work in distemper. This size will only be necessary on very delicate work; on most occasions the common size, diluted with water, will answer the purpose.

The pigments that will be required for producing landscape, in this style of painting, are yellow ochre, king's yellow, indigo, prussian blue, vermilion, lake, indian red, venetian red, burnt umber, burnt sienna, vandyke brown; and, in common works, where permanence is not required, rose pink may likewise be used. A greater or less proportion of these colours should be ground very fine in water, and put in separate basins for use; for it is of great consequence to the painter to have all his colours at hand. They should be kept wet, but not thin, so that they may be taken out of the basins, when required, on the palette knife.

Before the painter applies any colour to the wall, to commence the sky (which, in all kinds of landscape painting, is the first part of the picture that is painted), it will be necessary for him to determine the tints he intends to employ, the shape of the clouds, distance, &c. as the whole must be done wet, to produce a good effect. By turning to Plate XXXVIII. the student will find an excellent subject for this sort of painting.

To commence the sky, take some prussian blue and a little lake, mix them together on the palette; the blue must of course preponderate. Put this tint in a clean basin, and add four times the quantity of whiting; to this pour a little size, and stir the whole well together till it is sufficiently thick to run in a thread from the brush; if it will not run in a thread, it is too thick: this may be remedied by adding a little more size and water. If it streams from the brush in different places, it is too thin, and will not cover; in this case more whiting and colour must be added. Having prepared the blue, there will be no occasion, in this subject, to mix up the tints required for the sky, near the horizon, nor the distant hills, as the mixture of a small quantity on the palette, when wanted, will be sufficient.

Having all the colours ready at hand, dip a large brush in the blue tint, and with an easy working of the wrist, so that it does not splash, go over the whole space that is intended to represent the sky, leaving the space untouched where the clouds mix with it. While the blue is wet, take a smaller brush, and, dipping it into the whiting, pass it very quickly round the edges of the space left for the clouds, working the edge of the white among the blue, so that they may blend together; then, mixing a little indigo and indian red on the palette, dip a brush in the size, and let a little drop on the colour. To this add about as much whiting as the bulk of the other two colours, and with this tint go over the parts left for the clouds, taking care not to let it touch the blue previously laid on. Then, mixing a little indian red, with the grey tints already on the palette, go round the edge of the cloud, towards the white; dip the same brush in the yellow ochre, and go round the red, and then with the white go round the yellow. This must be done in almost as little time as it takes to read the directions, which can easily be performed if the brushes and colours are all ready. When the colours are thus laid on, take a clean brush, without any colour, and soften and blend the tints together while wet, so that the dark cloud may seem to melt imperceptibly into the blue sky. Towards the bottom of the cloud make a tint with lake and whiting, and lay it on with the large brush, a little beyond the edge of the cloud, and, without taking more in the brush, work it up to it, so that the edge of the cloud softens into the pink tint. At the horizon, draw the large brush along with a tint made by mixing king's yellow, a little vermilion, and one part whiting. Let the yellow work up imperceptibly among the pink; when this is done, the sky is finished.

If the painter has used so much whiting with the colours that the work appears nearly the colour when wet that he intends it to appear when finished, he will find that it will scarcely be perceptible when dry, so much does the whiting overpower the transparent colours; and, on the contrary, if the colours are used without a sufficiency of whiting to give them body, they will not cover, and will appear streaky and dull. Before the yellow on the horizon is dry, the distant mountains should be painted, so that they may blend with it; the most distant must be nearly the same colour: it may be made a little darker by adding a small quantity of venetian red to the yellow tint; the dark shade to this must be the sky tint. A little nearer, the mountains become more distinct. The blue and lake is used with less whiting, and the sparkling touches, on the most prominent parts, are dabbed with yellow, mixed with a little more whiting.

The colour of the hills increases in strength, as they approach nearer, with lake and blue, to which, now and then, may be added a touch of yellow running amongst it till it meets the edge of the most distant mass of trees. Take care to paint in enough of the horizon and distance, so that it may run behind the objects in the foreground.

When the sky is quite dry, with a piece of pointed pipe-clay draw the buildings and the shape of the masses of trees, taking care to get every object in its proper situation. If it is a composition, it will not be of much consequence if the painting is not exactly like the sketch previously made on paper; but in a real view more attention is required in the drawing.

In the subject under consideration, the Gothic ruin is the principal object. The mutilated remains of the handsome Gothic window will have a beautiful effect, if well executed. The ground colour for the lines, towards the light, is burnt umber, yellow ochre, venetian red, and prussian blue. A small quantity of each of these colours must be laid upon the palette separately, and the changing colours for the surface of the building must be formed with them as required.

The student will understand better what is intended to be conveyed by the words "changing colours" by referring to any good coloured drawings of ancient buildings, or, what is much better, if within his reach, to buildings of this description; and he will find that the surface, though originally, perhaps, composed of stone nearly all of a colour, is, from the effect of time, vegetation, or other causes, greatly varied; and it is this variety of tint that is the chief beauty in buildings of this kind, and makes them so fitted for picturesque effect. All subjects facing the light will assume a warmth of tone; and in the Gothic ruin the surface may be laid in at the top with yellow ochre and venetian red; then, with the brush for the yellow, cover a little space with that colour. This may be joined with the lake or rose pink, and near this a touch of blue may be given. When this variety of tints is spread over the surface, they may be blended together with a clean brush, and the surface will be found sufficiently varied: if there are any projecting stones, they may be formed with yellow ochre. The dark touches between the stones are made with vandyke brown. The tracery of the window is formed with the same colours, heightened in the strong lights with lines of king's yellow and whiting. The shade of the tracery is vandyke brown. The shadow of buildings, and most other subjects, is grey, made darker or lighter as it approaches or recedes from the eye. The very deep shade of the window is indigo and red, with very little whiting. The more distant masses are laid in with a grey tint, formed with prussian blue, indian red, lake, and a little whiting. A touch or two of warm colour may be given among the grey, to shew a little variety of tone, which is frequently seen on masses of shade, arising from reflected lights, or the different colours of the materials with which the walls are formed: but warm tints must be introduced with great caution into the shadows, or they will make them muddy and spoil the effect. The small square building in the distance can be formed by a touch or two of the brush while painting on the larger masses of building.

The trees in the distance must be kept grey, with a touch of yellow towards the edges. They will require no marking to shew the foliage; if the outline and light and shade are preserved, it will be found sufficient, as the foliage cannot be discerned on trees placed at a great distance in nature. The mass of trees at the back of the boat will be more green, though still kept distant. The tint for this mass may be formed of yellow ochre, prussian blue, and a little indian red. The marking and shade with indigo and red.

The trees standing on the small island are not laid on in mass, but are formed by strokes and touches of colour, placed near each other to shew the foliage. These, on the light side, are formed with king's yellow and burnt sienna; and, on the dark side, with burnt sienna and prussian blue: the touches must be worked one among another, as seen in the copy, and formed thin, and made to break gracefully at the edges. Spaces must be left between the masses of lines, so that the sky may be seen between them. When the lines of the light and middle tints are formed, the shade will still be required, as, however finely and spiritedly the short lines are drawn, they will look tame and insipid without it. The lines on the light side may be shaded with a warm tint of king's yellow and prussian blue; on the dark side with vandyke brown. The trunks of the trees may be formed with the latter colour, and a touch or two of yellow ochre made where the light falls strongly upon them.

The tree that will require the greatest attention is the drooping willow in the foreground. The disposition of the branches must first be drawn, and the middle tints, formed with king's yellow, prussian blue, and a little red, laid upon them in mass; then the shade, formed with yellow ochre and indigo, must be laid on in mass in the dark parks, working and blending it among the middle tints. The trunk of the tree and the branches should now be drawn with a variety of tints, all inclining to brown and green, and the strong touches dabbed on in the shade with vandyke brown. When the whole is dry, the strong light and shade must both be laid on in hatches or lines, as seen in the copy, to give the effect of the long delicate leaf of the willow. Of course the light must be laid on the middle tint, and the dark markings on the shade.

The foliage will appear harsh or graceful, according to the taste and skill of the painter in managing the hatchings. The lines must follow each other, slanting downwards, till they lose themselves in a point. The colour for the light hatchings is king's yellow and prussian blue; very little of the latter will be required, as the colour must be the brightest yellow-green it is possible to produce. The landscape, in this instance, has been coloured highly, as the Gothic screen in the foreground (the colouring of which has been before described) is dark and solid, and will admit of the landscape being brought near to the eye.

The Chinese view, seen in Plate XL. is arranged differently. The open viranda is light, and the colours bright and shewy: the landscape must in consequence be kept very faint and delicate. Nearly the whole is worked in a light neutral tint, formed with indigo, lake, and whiting. The island, with the pagoda, and the boat, flags, &c. will admit a little colouring, but the whole must be kept sufficiently faint to preserve a great distance between the landscape and the viranda.

The directions on scenic decoration will be given in the next chapter, when the student has become, in some degree, acquainted with the proper heights, ornaments, &c. of the different orders of architecture, so that he may be enabled to blend landscape and architecture together, with elegance and propriety, which he will be constantly required to perform in the decoration of elegant apartments, and in transparent blinds. It must be cheering to the decorative painter to find the public taste keeping pace with his exertions. There are no persons who have been acquainted with house-painting the last ten years, but must be surprised at the rapid improvement and the extensive demand for every description of ornamental painting. We cannot walk in the streets of London without seeing specimens of graining and marbling, that a short time since it would be thought impossible to produce; but though much has been effected, a great deal remains to be done, particularly in the judicious arrangement of the imitations of wood and marble, both in rooms and exterior ornaments. It is not an uncommon thing to see door posts, painted in imitation of satin wood, supporting a frieze of verd antique, and a cornice of red marble, or to see panels of porphyry enclosed within styles of rose wood. These incongruities only require pointing out to be amended. The rules for avoiding them will be found in the next chapter.

CHAPTER IV.

GRECIAN, ETRUSCAN, AND ROMAN DESIGNS, AS EXEMPLIFIED IN ANCIENT AND MODERN PALACES, COURTS OF JUSTICE, HALLS, &c.

IN the designs previously given, the five orders of architecture, according to the Greek and Roman standards, have been but incidentally mentioned; and though it does not so materially concern the painter as the architect to know every minute member that characterizes the five orders, yet it will be impossible for him to select specimens from the best masters, as models for his own imitation, unless the features that distinguish them from each other are known, as well as the proper buildings to which they may be applied. The orders, as now executed, are five, and range as follow:—The Tuscan, the Doric, the Ionic, the Corinthian, and the Composite, which are distinguished from each other by the height and thickness of the column, with its base, capital, and entablature.

The Tuscan order is characterized by its plain, robust appearance, and is therefore used only in works where strength and plainness are wanted. It has been used with great effect and elegance in that durable monument of ancient grandeur, Trojan's column at Rome; and general consent has established its proportions for such purposes beyond all others.

The Doric possesses nearly the same strength as the Tuscan, but is enlivened by its peculiar ornaments, as the mutule in the cornice, the triglyph in the frieze, and the guttæ, or drops, under the triglyph. These decorations characterize the Doric order, and, in part, are inseparable from it. Its proportions recommend it where united strength and grandeur are wanted. Should the painter be called upon to decorate the interior of a banking house, town hall, court of justice, or any building where solidity and grandeur, rather than exuberant ornament, are required, he will find this best adapted for the purpose.

The Ionic partakes of more delicacy than either of the former, and therefore, as well as on account of its origin, is called the feminine order. The boldness of its voluted capital, with the beauty and slenderness of its shaft, makes it eligible for porticoes, frontispieces, entrance to houses, &c.

The Corinthian possesses more delicacy and ornament than any other order; the beauty and richness of the foliaged capital, with the delicacy of the pillar, render it very properly adapted when magnificent elegance is required. It is frequently used for internal decoration to banquet and concert rooms, theatres, or indeed every building appropriated to polite pleasure.

The Composite is a Roman order, formed from the Ionic and Corinthian; its proportions and effects are the same as the order last mentioned, and it is applicable to the same purposes.

Though the Tuscan order is placed first, it by no means follows that it is the most ancient; and, from the great similarity in size with the Doric, it is the opinion of Sir William Chambers, and other intelligent writers, that it is merely the Doric without the ornaments: there will, therefore, be little necessity for describing it. It derives its name from Tuscany, in Italy, where it was first used.

The Doric is a very ancient order, and buildings erected in this style more than two thousand years ago are still in existence. The temple of Neptune at Pæstum, and the Pantheon at Athens, are fine specimens of the durability and beauty of the Doric column, the proportions of which have varied in different ages, but are now used as follow:—The height of the column, including its capital and base, is sixteen modules.

As the word module will frequently occur in architectural admeasurement, it will not be improper to explain it before we proceed farther. A module is the lower diameter of a column divided into two parts; one of these parts is a module; each module is divided into thirty parts called minutes: thus neither the module nor minutes are determinate, but a proportionate measure. The height of the entablature is four modules, which, being divided into eight parts, two are for the architrave, three for the frieze, and three for the cornice.

The base is one module in height, the capital thirty-two minutes, or a little more. The ancient Doric column has no base, but it is now always introduced; it is likewise fluted in contradistinction to the Tuscan, which is usually executed plain.

Vitruvius, a Roman author on architecture and antiquities, gives the following description of the invention of the Ionic order:—"Ion, the son of Xuthus, building a temple to Diana, was determined to form his columns with all the elegance of feminine proportion. Thus he was the first who gave eight diameters to a column. That the aspect might be more pleasing, and that its appearance might be more lofty, he added a base in imitation of a sandal; the volutes, like locks or plaits of hair hanging on each side, he gave to the capital, ornamented with fruits or flowers in festoons; and furrows or flutings down the columns were wrought, resembling the folds or plaits of a matron's garment. Succeeding architects, much approving the taste and ingenuity of this design, allowed eight diameters and a half to this order."

The standard of the modern proportions is as follows:—The height of the column is eighteen modules, and that of the entablature four modules and a half, or one quarter. The height of the column, as in the other orders, is rather less than the antique specimens; the capital is twenty-one minutes, and the base thirty minutes in height. The shaft of the column may be plain or fluted, with twenty-four flutings, and the plan may be a trifle more than a semicircle, because they then appear more distinct; and the fillet or interval between them must not be broader than one-third of the breadth of the fluting, nor narrower than one quarter thereof. The ornaments of the capital are to correspond with the flutings of the shaft. The entablature being divided into ten equal parts, three are for the architrave, three for the frieze, and four for the cornice. In interior decoration, where much delicacy is required, the height of the entablature may be reduced to one-fifth of the height of the column.

The origin of the Corinthian order, as related by Vitruvius, is peculiarly interesting. A marriageable young lady of Corinth fell ill and died; after her interment, her nurse collected together sundry ornaments with which she used to be pleased, and putting them into a basket, placed it near her tomb; and, lest they should be injured by the weather, she covered the basket with a tile. It happened the basket was placed on a root of acanthus, which, in spring, shot forth its leaves. These, running up the side of the basket, naturally formed a kind of volute in the turn given by the tile to the leaves. Happily, Callimachus, a most ingenious sculptor, passing that way, was struck with the beauty, elegance, and novelty of the basket, surrounded by the acanthus leaves; and according to this idea or example he afterwards made columns for the Corinthians, ordaining the proportions such as constitute the Corinthian order.

The modern proportions for this order are as follow:—The column is twenty modules in height, the entablature five modules, the base one module, the capital seventy minutes. The proportion of the members of the entablature is the same as in the Tuscan and Ionic orders. If the entablature is enriched, the shaft of the column may be fluted, and the flutings may be finished to one-third part of their height with cabblings, which will strengthen the lower part of the column, and make it less liable to injury.

The Composite or Roman order certainly owes its origin to that constant solicitude after novelty which ever renders the mind of man restless in an enlightened and highly cultivated age. The desire of variety and novelty, either of new invention or combination, certainly engaged the Roman architects to unite with the proportions and enrichments of the Corinthian order the angular volute and dentils of the Ionic, and by this union to compose a new order. The introduction of the angular Ionic volute, and the omission of the upper row of leaves in the capital, certainly give it a more bold and noble aspect than the Corinthian, differing from any other order; and possessing an elegance and projection very pleasing, it may be used with the most agreeable effects. The triumphal arches at Rome, the palace of Nero, and many of the most magnificent buildings in the world, prove the excellence of this combination, and render it equal in value to original invention

The following are the proportions now used:—The height of the column is twenty modules, and that of the entablature five modules; the capital has seventy minutes in height; the base measures the same as in the Doric and Ionic, and as the module is less, all its parts will of course be more delicate; the shaft may be enriched with flutings to the number of twenty or twenty-four; the entablature may be divided into ten equal parts, three for the height of the architrave, three for the frieze, and four for the cornice.

In order to shew the proportionate heights, and likewise to render the painter familiar with the architectural terms used in the brief description here given of the five orders, he will find, in Plate XLII*. Fig. 1. an outline of the column and entablature of the Corinthian order. A is the entablature; the student will see that it occupies all the space above the capital, and is divided into three parts. B cornice, C frieze, D architrave. The members of the cornice are *a* cima recta, *b* corona, *c* modillion, *d* dentils. C the frieze, which in the Corinthian entablature is usually plain; in the Composite it is ornamented with figures, instruments used in sacrificial worship, flowers, or other ornaments according with the character and use of the building. The architrave D is composed of *e*, cima reversa, and *h*, *g*, *f*, first, second, and third facias. E is the capital; the upper member, which joins the first facia of the architrave, is called the abacus. *i i* are the volutes; *j* is the astragal. F the column. G the base; *m* is the torus; *l* the scotia; *k* the second torus. H the plinth.

Fig. 2. is the outline of the members of the Tuscan and Doric order. A is the cornice, which is formed by *a* cima recta, *b* corona, *c* ovolo, *d* cavetto. B is the frieze, *f* the triglyph, *g* the plain space between them, called the metope, *h* guttæ. C is the architrave. D the capital. E the shaft or column. F is the pedestal, *i* cornice of the pedestal, *l* the body or die, *d* is the base, *k* the plinth.

Fig. 3. is the circumference of a column, divided into a module and minutes. The admeasurement of a module is half a diameter, as is seen at *a*. Minutes are the thirtieth part of a module, as seen at *b*. The painter, who is required to produce columns in either of the orders of architecture, will be enabled to form all the members correctly by referring to this plate, and the plate containing the plain mouldings.

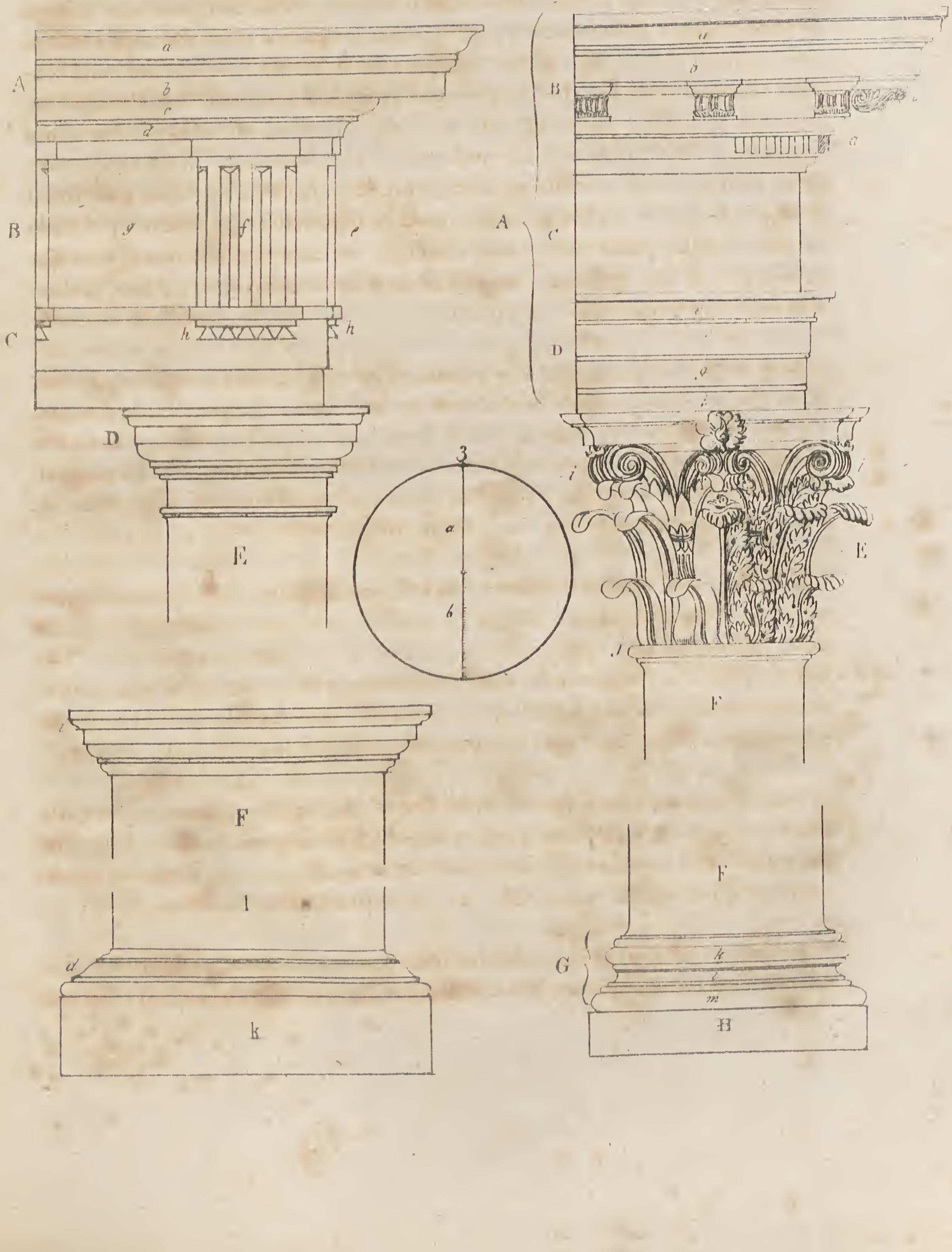
Pilasters may be produced in either of the orders; they are usually placed against a wall, and project one-fifth or one-sixth of its breadth: they have the same proportions and ornaments as a column, but no diminution, being the same width at the capital as at the base.

In many of the ancient buildings, figures of men and women are substituted for columns. Where female figures are thus used they are

Plate XLII*

Fig. 2

Fig. 1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called Caryatides; the origin of which is thus related by Vitruvius:—"The inhabitants of Caria, a city of Peloponnesus, made a league with the Persians against their own nation; but the Persians being worsted, they were afterwards besieged by the victorious party, their city taken and reduced to ashes, the men put to the sword, and the women carried away captives. To perpetuate the memory of this victory, the conquerors caused public edifices to be erected, in which, as a degradation and servility, the figures of the captives were used instead of columns; thus handing down to posterity their servility and merited punishment." When figures of the male sex are used, they are called Persians or Perses.

In many buildings the stones forming the pedestals of columns are said to be rustic; the term is applied to those stones in any part of a building that are hatched or pecked in holes to resemble rock work. They can only be applied with propriety to the lower part of any edifice.

In many of the preceding plates, columns will be found differing greatly from either the Greek or Roman orders, and at the present time buildings are erected without regard to any style of architecture; but the painter will always be required to imitate the best models, and should never commence any architectural decorations without thoroughly considering the style, and letting the decorations accord with it throughout the whole work. Many volumes have been written on architectural ornaments; but it would only increase the bulk of this work, without adding to its utility, if the remarks on architecture were prolonged. There is no painter, who has a work of consequence to execute, but will study the best authorities to work from; and for any common work the examples and remarks here given will suffice.

All the orders, when executed in painting, should be produced in imitation of some of the most beautiful marbles, always taking care that the marble corresponds with the architecture of the place, and likewise with the character of the building it is intended to decorate. For example, Corinthian pilasters of verd antique marble, with gilt capitals and cornice, would be a very appropriate ornament for the flat walls of a concert room; but would be very much misplaced in a court of justice, where nothing should be admitted in the way of ornament that would look gaudy or trifling, and destroy the solid grandeur of a place devoted to the most important purposes.

Laresse, who was a French painter of great eminence, and the author of a very voluminous work on every branch of painting, has a short chapter on the disposition of coloured marbles, a translation of which is introduced. The observations on the contrast of colour in the several marbles will be very useful to the painter who has become an adept in the art of imitating them separately, as he will there find how they may be blended together, in one building, with the best effect. The chapter is entitled, "The method of matching the various coloured marbles, as well without as within a building, with the proper colours for tombs, vases, &c." After some pithy observations, as to the capability of persons judging of the beauty or defects of the workmanship in imitation of marbles, or in the use of the various coloured marbles employed in architecture, who are not acquainted with the practice, but merely the theory of the art; he proceeds to observe, that "Nature produces an infinite variety of fine stones of various colours and qualities, but art alone judges of their fitness and orderly location in rank and dignity.

"We know that the white marbles are soft and tender, and lovely to the eye; the black, on the contrary, are melancholy and disagreeable; we place, then, the black marbles among the red, and upon the red the white. These three coloured stones are capitals, and cannot be otherwise disposed, according to their nature or qualities, without forcing nature, and running counter to art; their rank and application in architectural use may be as follows:—In the Tuscan order, as the inferior or undermost, dark or black marbles; in the Doric, green; in the Ionic, yellow; in the Composite or Roman, red; and in the Corinthian, white. If it is asked, why the red is not set before the yellow, since the red is in its nature darker than the yellow, the answer is, that red and green contrast with each other, while the yellow harmonizes with it, as yellow and blue produce a green.

"A marble painter must observe the conveniency and place for marbling; if the place is large as a theatre, or hall, or church, then he may paint boldly and with force; but in a smaller compass he ought to moderate the work, and keep it faint and delicate, that the place may not seem thereby lessened or the eye offended. If the hall is hung with pictures he should consult the painter who produced them, or other men of judgment and experience, what colouring will be least injurious or best fitted to shew them to advantage.

"In painting fronts or rooms that are to represent colonnades, they may be very agreeably disposed thus:—The base and pedestal mouldings may be dark, speckled marble, the block or square of the pedestals, dark red porphyry, much dotted; the plinths of the columns and pilasters may be white, the columns a light fleshy marble or sienna, with large veins; the capitals white, the architrave dark, dove, or serpentine, the frieze porphyry or other dark red marble; the cornice, if, like the architrave of the frieze, it has raised ornaments of foliage triglyphs, ox skulls, &c. they ought to be white. If over the cornice a parapet is raised, it may be entirely of another colour, and the pedestals and mouldings of frisan or other cross-veined marble. The panels or faces, if adorned with bass-reliefs, should be white; if figures or vases are placed at the top, they should also be white. This distribution may be varied by making the friezes and columns white, the bases and capitals gold; in this case the triglyphs, and other ornaments should be gold, the rest remain as before.

"In an hall or apartments of red or other marble (where the mouldings of the ornaments are different, larger or smaller), the door, frontispiece, or alcove, should be white or other marble; but if the members continue along the hall, the frontispiece or alcove ought to be of the same colour with the apartment. The room may be of one order, and the frontispiece of the door and chimney of another, without deviating from propriety.

"Tombs of various coloured marbles must be managed according to the preceding observations.

"The beauty of painting the interior of buildings consists in an elegant expression of the different marbles that are supposed to compose them; for this reason the mistakes of some painters must be avoided, who vein and eye their work, and afterwards divide it into stones, whereby one vein or eye is seen running through two or three stones at once, whence the spectator will immediately conclude that it is imitation: the most certain way to avoid this is, to divide the work into as many divisions to represent stones as may be proper, and then to marble and vein them.

"A well-informed architect takes especial care of the setting of the stones in a marble structure, so that the various colours and veins may harmonize together; thus in the columns of a portico, the veinings must be agreeably diversified and oppose each other, and not at all slant, or run in the same direction. The stones for the architrave, frieze, and cornice, should be so chosen that the veining will fall perpendicular, in order to keep the members distinct, which they would not, were the veins to fall in with the mouldings."

It remains to be observed in marbling columns, that the eye veins ought to receive the strongest light on the relieved and swelling parts, in order to aid the flat of the puncture by art, which nature does not require in the round columns, as the light naturally strikes strongest on the most projecting parts. Never enclose marble or bass-relief with wood work, it is repugnant to custom and to propriety.

The decorative painter who wishes to see architectural painting carried to the highest pitch of perfection, would do well to study with great attention the fluted pilasters in the painted hall of Greenwich College, for modern work in distemper. The bass-relief ceiling of the Roman Catholic chapel, in Moorfields, contains some of the best specimens both in panel and figures. The altar-piece, by Aglio, is a fine painting, and it is greatly to be regretted that the colours are not more permanent.

The entrance hall to Blenheim Palace, Oxfordshire, contains one of the finest specimens of architectural painting in the kingdom; the sides are divided into a double colonnade; the columns are placed on a dwarf wall, and the effect is greatly heightened by figures of every nation looking over it, as if viewing the persons in the hall.

The method of decorating the sides of large apartments with architecture and landscape is much practised in the palaces of the Italian nobility. The talents of the flower painter are there called into action, as the space between the columns is generally decorated with beautiful representations of festoons of flowers. This species of ornament may be judiciously applied to places devoted to summer amusements; but it would not be in accordance with good taste to introduce flowers in the decoration of the interior of houses, as our climate is not favourable to this species of ornament in nature: in scenic decoration they have a beautiful effect. The painter who wishes to produce them will find the study very easy in water colours on paper; and when he is able to draw and colour them with tolerable effect, he will find them produced with great rapidity in distemper, particularly if they are viewed from a distance.

Painters who wish to study the effect produced by the combination of colours, in highly decorated apartments, will find Pine's Interior Views of Royal Palaces an extremely elegant and useful work.

Scene painting is executed in distemper colours, and the only difference between the decoration of apartments and scenery is, that the painting in the former is much nearer the eye than the latter. Rooms require to be painted with great delicacy and care; scenery with boldness and effect. The colours and pigments for producing them are the same in both. Scenery is generally intended to be exhibited by candle-light; consequently the colours must be much more brilliant than those used in the decoration of apartments.

Persons who execute scenery for large theatres are aware of the point of sight proper to exhibit landscape or architecture with the best effect to the spectators in various parts of the house; and it must, of course, be placed so that the scenery may appear natural to the greatest number of spectators. In general the heads of the persons sitting in the lower tier of boxes are the same height as the actors; and, in small theatres, it will be better to make the horizontal line, as in nature, equal to the height of the eye of a person standing in the centre of the stage, or, in some cases, a little higher; it will then not offend the eye in any part of the theatre, as it will not appear more out of perspective than the actor himself. One of the great causes of the want of effect in scenery is, that it is in many cases painted without reducing the colours in the distance, from an erroneous opinion that it does not require any great gradation of colour, since it is really placed at a great distance from the eye of the spectator; but a moment's reflection will convince any painter that the distance is too trifling to make any thing like a sufficient apparent distance, as but little air intervenes between the picture and the audience; it will therefore follow, that the appearance of distance must be given, as in all other pictures, by the absence of colour, and that no part of the flat scene should be painted stronger than the last pair of wings. The wings should be painted with due gradation, letting them be bolder, and made out with greater care, as they come nearer to the audience.

In no kind of painting is a thorough knowledge of light and shade more essential than in scene painting. The remarks here given will apply to every kind of picture.

Shadow in optics is a privation of lights by the interposition of an opaque body; if that body is perpendicular to the horizon, and the place it is projected on is horizontal, the shadow is called in painting a right shadow. Such are the shadows of men, trees, buildings, &c. If the opaque body is parallel to the horizon, the shadow is called a versed-shadow; such as the arms of a man stretched out, or the sails of a mill.

To define a natural shadow we do not call it an absolute privation of light, but merely a diminution of it. The diversity of luminaries occasions a difference in shadows; for if the body that illumines be larger than the body illuminated, the shadow will be less than the body; if they are equal, the shadow will be equal, and if the luminary is less than the object, the shadow will be continually enlarging as it goes farther off. Thus the same objects may present a diversity of form in the shadow, though illumined on the same side; the sun giving one form, the torch another, and the day-light, without a strong sunshine, no precise form at all.

The sun always produces a shadow equal to the objects in size, though, of course, it will vary in length according to the hour of the day. Thus, early in the morning or late in the evening, at the rising or the setting of the sun, the shadows will be of a great length; these will diminish as the sun approaches the meridian, at which hour (the middle of the day) the shadows will be very short, and will lengthen again as the sun declines. The careful painter will therefore observe the hour in which the action that he is about to represent takes place, and will let the light and shade be disposed accordingly. If he depicts the interior of a cave or dungeon, with a lamp hanging from the ceiling, he will be aware that the whole of the painting must receive its light from that luminary, and will paint the objects bright or obscure as they approach or recede from it. The shadows will all be larger than the bodies themselves, as the light is so much less, and will increase in size as they recede from it; in such scenes it will therefore be most productive of effect to make all the lights proceed from one luminary. In brilliant scenes, where a number of lights are introduced, the shadows will, of course, be very small or faint, as they will be crossed in all directions, and should be as thin as possible.

In day-light scenery, where the sun is not shining, the shadows may be placed at pleasure, but no object must have its form defined in the shadow. The shade may be stronger near the base of the object, and gradually lose itself in the lights.

Perspective diagrams might be given to shew the method of drawing shadows, according to the height of the sun, or the situation of the lamp; but a little observation will be sufficient to enable the scene painter to place objects in light and shade, without having recourse to so troublesome an operation. Since the introduction of the diorama, the method of throwing a variety of colours upon scenery, by letting the light fall on them through different coloured mediums, is now much used, and if well managed produces a wonderful effect, particularly in conflagrations, moonlight, and the rising or setting sun.

CHAPTER V.

STENCILING, TRANSPARENT BLINDS, AND OTHER WORKS USEFUL TO PAINTERS.

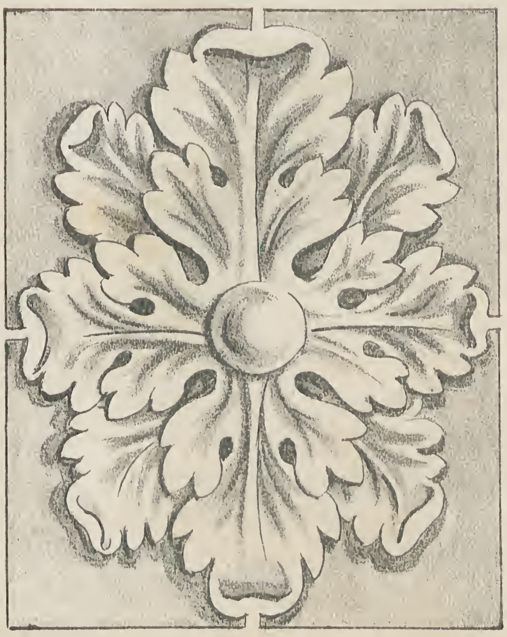
STENCILING is the cheapest and most expeditious method of decorating rooms, and is always done with distemper colours. All the pigments that will grind in water may be used in this process.

The usual way of proceeding is to procure an elegant pattern, containing about four colours, or more if required. The stenciller must be careful to trace upon transparent paper (prepared as directed at page 74), all the outline of the subject that is in middle tint; he will, on another piece of tracing paper, draw the outline of the first shade; and on a third paper draw the darkest shade; and on the fourth the strongest lights.

STENCILING.

Plate XLVI

1



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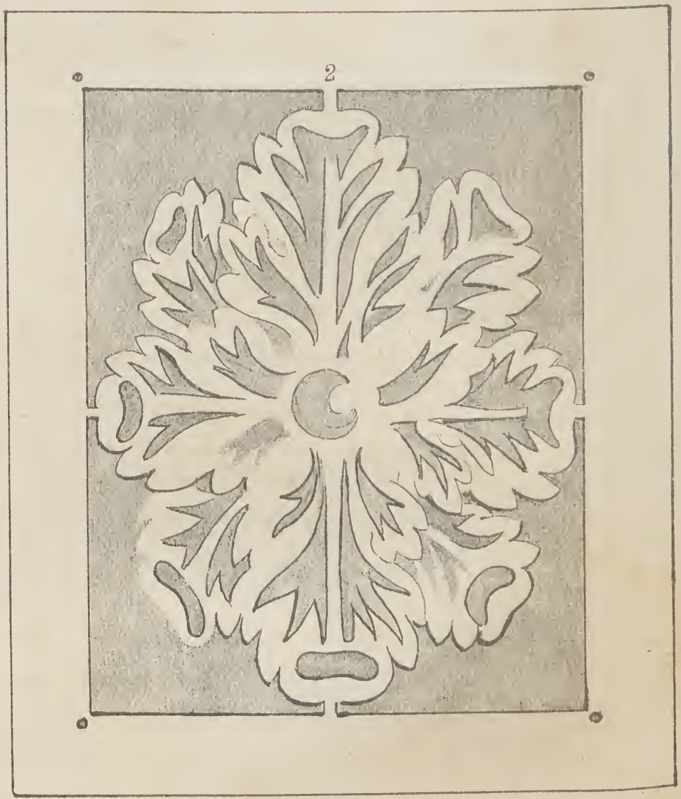

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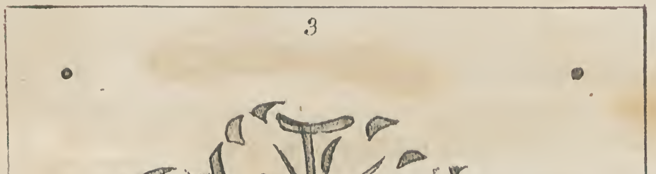

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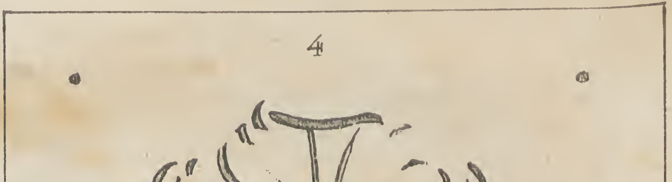


Plate XLVI.* Stencil patterns. 1. the rosette, when finished. 2. the stencil for the middle tint. 3. the second shade. 4. the darkest shade.

When the tracing of the whole is made, they must be transferred to common thin pasteboard, by placing a paper, well rubbed over with red chalk, between the tracing paper and the pasteboard, taking care to fasten it with pins, so that it may not move in the slightest degree while the outline is tracing with a blunt needle. This process has been described before at page 74. When the red paper is taken away the outline will be found fairly drawn on the pasteboard, and the pieces, as seen in Fig. 2., must be cut out with a penknife. Great care must be used in the fine lines towards the centre, for if one is cut through, the whole piece may be spoiled, or it will at least take a great deal of trouble to mend it. The circular sweeps should be cut with great freedom, so that there may be no notches or angular touches upon the pasteboard. The other patterns are prepared in the same manner, taking care to let them, when finished, fit exactly. This may be secured by making four points upon the first pattern on the tracing paper, and making the other patterns correspond with it. When the patterns are all cut out, the edges should be carefully rubbed down with a little cuttle-fish bone. The pasteboard patterns must then be painted over with two coats of oil colour. White, as having most body, and drying quicker than any other colour, is to be preferred. When dry, the stencil patterns are fit for use. This method may be pursued with every kind of pattern; the only thing required is to cut the pasteboard into the smallest pieces, so that it may have a sufficient number of parts to hold together, and resist the action of the brush.

This rosette alone makes a neat ornament for a bed-room, if done in white, shaded with brown, on a pink, salmon, blue, or light-green ground. Where the rosette is used without any other ornament, the distance of one rosette from the other may be easily marked by cutting the pasteboard pattern the exact size required, so that the top of the pattern may half cover the rosette on the wall. The distance at the side may be marked in the same way, to prevent all the trouble of forming lines on the wall.

The middle tint pattern, Fig. 2. is used first: this tint is made by mixing whiting, lamp black, and raw umber; the two latter colours must be used sparingly. A sufficient quantity of this colour should be mixed in a basin to do the whole of the room, as it is difficult to match the exact tint a second time. This colour should be laid on with a large brush, which should be well filled with the colour, but not wet. This may be managed by dipping the point of the brush in the colour, and afterwards working it on a board till the whole of the colour is well mixed in the hairs of the brush; the pattern may then be placed on the wall, and the colour lightly brushed over it, without danger of its running, which would be sure to occur if the colour was put on without being well worked in the brush. None but persons who have tried this species of colouring can conceive the rapidity with which it may be executed, as the quicker the tint is spread over the pattern the more clear and distinct it will appear when dry.

The colour for the second pattern, Fig. 3., is made with whiting and vandyke brown. The tint may be at least three shades darker than the middle tint; it is laid on in the same way as the first pattern.

The deep shade, Fig. 4., is formed with vandyke brown, and is laid on in the same way, but not till the colour previously laid on is dry

In stenciling this rosette the ground is supposed to be white, or the colour required for the strongest light; but, if a strong white touch upon the middle tint is wanted, another pattern must be cut, and the whiting applied very thick, in as dry a state as possible: this is essential, because if it is too wet, the ground colour will mix with it, and spoil the whole.

Where gilding is introduced as the strong lights upon a stencil pattern, it will be necessary to lay on three or more grounds of thin glue size, till the space to be gilt looks glossy; the gold size may then be applied without fear of spreading. Before the gold leaf is applied, it should be cut nearly to the shape required, on the cushion, or the waste will adhere to the rough work. The gold size should be gone over twice, as the first coat might probably be absorbed by the wall, and would not bear without a second coat.

One of the fashionable modes of decorating apartments is to let the walls appear in flame-coloured streaks, upon a light ground, and stencil over both. The flame-colour is formed by drawing a long streak of blue, then one of red, next yellow, and lastly green. The whole of the streaks are softened and blended together with a large dusting brush. The flame mixture will run from the top to the bottom of the room in light wavy lines; if a space is to be left between them, it must be marked with chalk lines, and coloured after the flame-colours are dry; but if the stencil pattern is to be used over both, it will not be of so much consequence if the flame-colour is a little wider in some places than others. In this case, on the white or light green ground, a small flower is stencilled in flame colour, that is, in red, yellow, and blue; and on the flame-colour ground the same flower is stencilled in white, middle tint, and vandyke brown. There will be no occasion for three patterns for the flower, as the painter can easily form it by having separate brushes for the different colours; all he will have to do will be to give a touch on one of the leaves with the blue, on the opposite one with the yellow, and the red in the centre. The colours will thus blend together, and the whole be formed at once.

These separate flowers or rosettes on a varied ground are much easier executed than the old-fashioned joined festoons, and have a more lively pleasing effect. Almost any subject that can be executed with blocks on paper may be executed with stencil, but the profit is not commensurate with the trouble. There are many bold patterns that can be got from paper, which are very excellent for halls and staircases. The stencil patterns must be obtained exactly in the way here directed; if they are in squares four, six, or eight may be taken, according to their size. It is never advisable to have a stencil pattern more than half a yard square, as it is difficult to manage a larger space, and the pattern is liable to bend and get dirty.

Stencil patterns are very useful for angle-pieces, as they are sure to be all of one size if done from the same pattern, and can easily be worked upon by hand to make the breaks in the stencil join. In large scroll work, or in architectural designs, upon a large scale, stencil may be applied with great advantage.

There is a species of decoration which is at present confined to theatrical ornaments, but from the ease with which it may be produced, and its beautiful effect, joined with its great durability and lightness, it might be introduced into the decoration of apartments with great advantage; and though it does not come exactly within the province of the painter, it will be of great service to the decorator, as it will enable him to produce more elegant and appropriate ornaments, in gold or bronze, than those formed with the composition used by carvers and gilders, and, where any number are required, at less expense.

The helmets, shields, heads of banners, heraldry, and other decorations used in splendid theatrical processions, are all formed with paper, which is not only much lighter but more durable than composition. Ornaments in this material are produced in the following method:— Any old piece of carving, or the most elegant bass-relief, may be moulded by pouring plaster of Paris upon it, or by placing the object face downwards on a shallow vessel filled with liquid plaster of Paris; the subject should be oiled before the plaster is poured upon it: when the plaster is set and become quite hard, upon removing the model a mould will remain in the plaster, with every part perfectly formed. This is sufficiently hard to form the paper ornaments; but if it is required for any extensive work, the mould may be hardened to the substance of stone by oiling it a number of times, letting the previous coat be quite hard before another is applied; but, as before observed, this is not at all necessary unless the model is required to produce a vast quantity of one ornament. A quantity of thin writing paper must be cut in strips, and soaked in water for an hour or more, till it has become quite flexible: the strips should then be hung up a few minutes to let the water drain from them. Then take a strip of the paper, and with a piece of cotton wool press it flat into the mould, so closely that it adheres to it in every part, as far as it covers; then take another strip, letting it lay a little over the edge of that last put on. In this way proceed till the mould is completely covered; and if the paper is clean and well pressed into the mould, it will have nearly the same appearance as before the paper was applied. The strips of paper that have been hanging up will, by this time, have lost a great deal of the water previously absorbed, and are in a fit state to receive a coat of smooth paste; the brush filled with paste may likewise be applied to the paper in the mould. The pasted strips must now be pressed into the mould, upon the paper previously introduced; and this course may be continued, layer after layer, according to the thickness or strength required. There will be no necessity for letting the paper lie in the mould till it is dry, but merely for an hour or two, till the paste is set; it may then be taken out of the mould, and suffered to dry gradually, without any danger of the form being disturbed. When dry, the paper may be coloured in distemper, to imitate bronze, and the projecting parts heightened with copper dust; if to be gilt, gold size may be applied in the usual way. These ornaments have a beautiful effect on painted ceilings, gilt capitals of columns, &c.; and the intelligent decorator will see that any clever boy may produce them.

The remarks on stenciling are abbreviated in this chapter, as the author is, at the present time, employed in making some novel experiments in this branch of decoration, which, if successful, will carry the art to a much higher pitch than it has attained at present. The result of his exertions will be given in the concluding chapter.

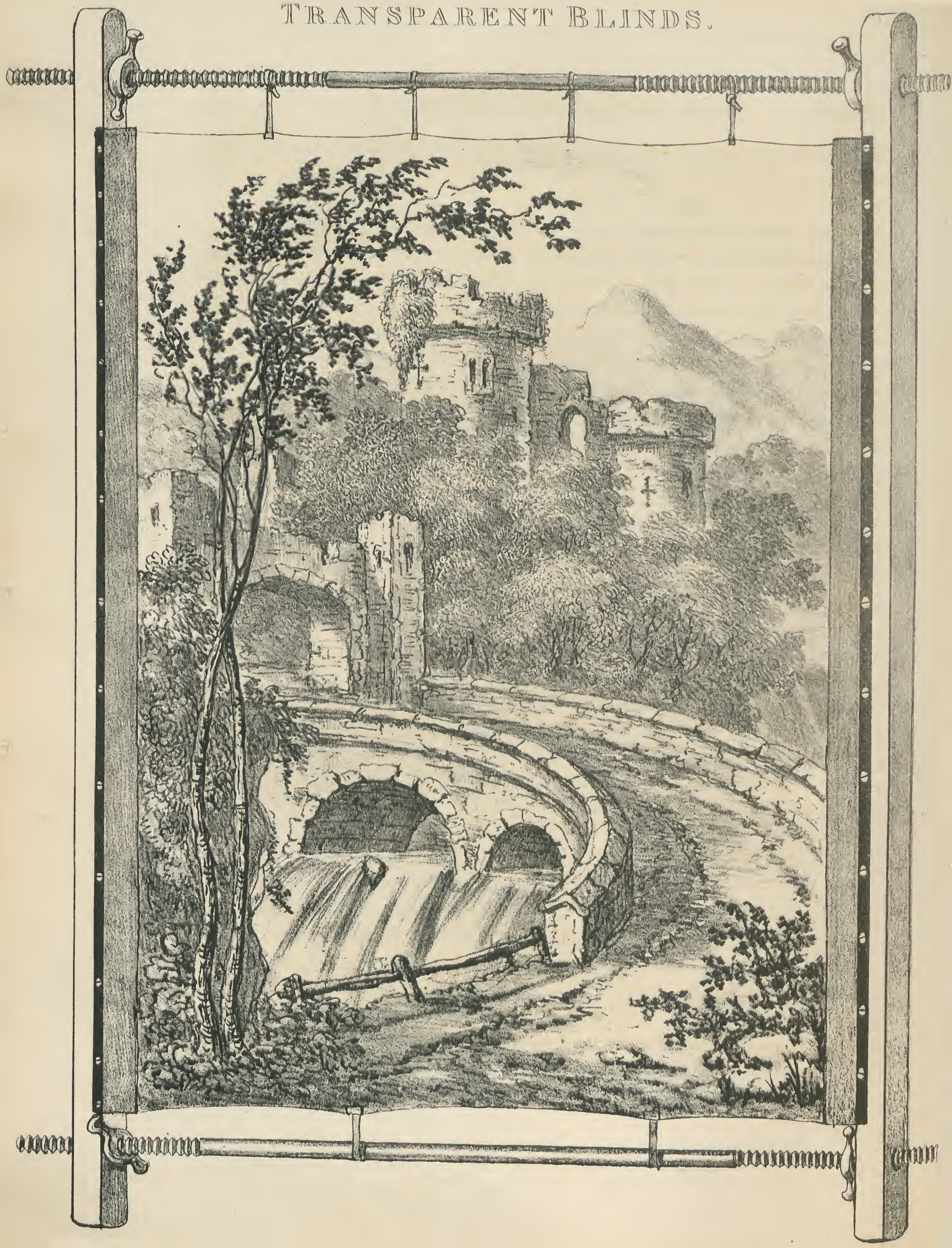
TRANSPARENT BLINDS.

The student who has succeeded in painting landscape in distemper on walls, or in water colours on paper, will find he has acquired the power of painting transparent blinds, as the principle of the art of landscape painting is the same, whether the picture is produced on an opaque or transparent ground; but the management of the ground, and the materials for producing the subject, are essentially different. The following directions will enable any painter that can draw to produce the most brilliant and effective transparent blinds, with the least trouble and expense.

Any person intending to paint transparent blinds for his support, should apply to the supervisor of the excise for the district in which he lives, and get his written directions upon the excise laws, as they apply to painted blinds; as in most of the cases that have come under the notice of the Board of Excise, the painter, who has infringed the law through ignorance, has been told that the law can always be known by applying to their officers, who are dispersed all over the kingdom. The excise laws, in this particular, are extremely vague and arbitrary; and most cases that come before the court, are adjudged more on the wilful intention of the parties to defraud the revenue, than for the direct violation of the statutes. The writer of this work is an artist, and not a lawyer, and if he were to state his opinion of the operation of the law upon painting transparent blinds, it might lead the reader into error: all he can say is, that in the number of cases that he has known or heard of, the painter was not visited with any penalty who painted on cloth upon which the duty had been paid, and was regularly stamped by the officer of the excise: but on a point that might be attended with great trouble to the painter, it will be better for him to be quite safe, by applying for information to the proper quarter, particularly as the officer is bound to give it, free of expense. But it is greatly to be regretted, that laws so harassing to the ingenious and industrious painter, should be suffered to remain in force, particularly when there is so much said, in all quarters, about free trade and liberal opinions. The artizan ought certainly to be relieved from the vexatious shackles upon his ingenuity and industry, and should not be visited with heavier penalties than the convicted felon, when he is in the honest and praiseworthy pursuit of a liberal art for the support of himself and family, without the slightest intention of infringing the laws of his country.

The material upon which blinds are usually painted is fine Scotch cambric or lawn, which can be procured of almost any width for this purpose. The cloth should be of an equal thickness all over, without lines, knots, or small holes, as any of these blemishes will shew more

TRANSPARENT BLINDS.



when the size and colour are applied than they do before the cloth is strained. There are various ways of straining the cambric before it is sized. The machine for straining, which will answer every purpose, and may be easily made, is formed with two square poles, about seven feet long and four inches thick: at each end of the poles, at about nine inches from the ends, holes should be bored about an inch and a half in diameter, to receive two cross pieces of wood, at the top and bottom. These pieces are turned at each end to within eighteen inches of the centre, and a nut, with handles affixed, turned to it.

By referring to Plate XLVI. the student will see a blind properly strained, on a strainer such as we are now describing. A small groove, about a quarter of an inch deep, and three quarters wide, is cut on one side of each of the square upright poles, to admit a long piece of iron, about a quarter of an inch thick; the pieces of iron must be bored to admit small screws, about a quarter of a yard apart. The cambric should be cut nearly the size required, and the selvages sewn to two long pieces of list: when sewn, strain the list quite tight at both ends, and place it on the groove; upon the list, lay the flat piece of iron, and screw it tightly down; fasten the list on the other pole in the same way. The cross pieces must of course be placed through the holes in the uprights before the cambric is fastened down, or it will be impossible to insert them afterwards. When the cloth is properly secured, turn the nuts upon the screws, at the top and bottom, till the cloth is strained rather tight. By referring to the plate it will be seen that pieces of tape are sewn to the cambric at the top and bottom; one end of which is thrown over the cross pieces, pulled tight, and then made fast; this strains the cloth till it becomes quite even, though not tight, as it must be strained after the size is applied.

The size suitable for very particular works, on a small scale, is isinglass, dissolved by boiling; but for large blinds, of the dimension of a common sash window, parchment size will answer quite as well, at much less expense. Parchment cuttings may be procured from the law stationers or vellum binders; they should be quite clean, and boiled in soft water for about two hours: the liquid should be strained through a muslin sieve, so that it may be quite free from the small particles of the parchment which otherwise will mix with it, and appear, when spread upon the cambric, like black spots. The size should be laid on when quite hot, with a flat varnish brush, beginning at the top of the cambric. Work it over as quickly as possible, and be careful to wet every part, by first drawing the brush over the space up and down, and afterwards diagonally; two or three minutes will suffice to go over the whole. The cloth will now be found to have become quite loose, and will require to be strained tighter, by turning the nuts on the screws, and by drawing the strings at each end. When the cambric is dry it will be tight enough to paint upon.

The painter must now examine the cloth to see if any part remains unsized, and if it does, apply a coating over them. When this is quite dry, it will be advisable to lay the cambric and go over it with the hot size once more, taking care that the brush passes over the cloth very light and quick, and that the size previously laid on is not rubbed up. When this is dry, the cambric is sufficiently prepared for painting upon.

In drawing the subject of Plate XLVI., which is seen strained on the frame, a very soft black-lead pencil may be used; but as the slightest touch will shew strongly, and any thing like an indentation on the cambric must be avoided, the pencil outline must be as light as possible; all the drawing that is required with the pencil being to get every part of the subject in its proper place: there is another reason why it should be very light, which is, that the lines cannot be taken out, and if heavy in the light parts, will be seen when the blind is finished.

The colours used in this sort of work are those that are most transparent, viz. prussian blue, lake, raw and burnt umber, raw and burnt sienna, and vandyke brown. A number of the brightest transparent tints may be made with these colours; but when others are required, any of the pigments become semi-transparent, when used with mastic varnish, which is the vehicle employed for laying on the colours in this style of painting.

The proper distances having been sketched in with the pencil, a little vandyke brown should be taken on the palette, and the whole subject properly sketched in with this colour with a camel-hair pencil, taking care in drawing the trees to mark distinctly where the strong masses of light are to be left. As the sketching colour will be laid on quite thin, it will be dry and hard in a few minutes. In this, as in all other subjects, the sky will first require the student's attention.

In the plate now under consideration the buildings, trees, &c. quite obscure the horizon. Commence at the top, at the left hand corner, with a little prussian blue and lake. This must be spread on the cambric thinly, with a hog's-hair tool. As the tint is drawn towards the castle, if no more is taken in the brush, it will of course become thinner; then adding a little indian red to the first tint, the same brush may be used to lay it thinly on the cambric, beginning close to the building, and taking it out towards the first tint, in the proper shape of the clouds: it may likewise be continued over the castle, and form the rolling edges of the clouds on the other side. When they are dry, a little yellow ochre may be very thinly glazed over the whole of the space that remains to be covered, taking care that it does not touch the edges of the clouds, as the colours ground in mastic varnish will not soften well one into the other, and this effect must be produced by working the tints one towards the other, without letting them blend, as in the present instance. In skies great care must be taken to let the whole appear thin and transparent, even in the darkest clouds. A very little colour will suffice to tint a large space, which must be covered evenly, by working the brush over it till all the colour is exhausted, otherwise the varnish will be liable to run in streaks, to the great detriment of the other parts of the drawing.

When the sky is finished, mix two or three warm tints on the palette, viz. yellow ochre, burnt sienna, a little vermilion, and lake; keep them separately, and have a small hog's-hair tool for each. With these colours, scumble on the changing tints on the parts of the building that appear in the strong light, letting the yellow ochre preponderate, but working the tints among each other to produce that agreeable variety of surface mentioned in colouring in distemper. A touch of yellow ochre may likewise be given to the lightest parts of the distant hills, as the reflection of the rays of the sun will give the same hue to every object.

The dark parts of the building must now be coloured; and, as has been before explained, shadows are always grey when opposed to a strong sun light. The principal tint must be formed with prussian blue and indian red; but this may be varied while it is being scumbled on the cambric, by giving a touch here and there of the warm colours, and working the grey round and among them.

The shade of the distant mountains may be coloured with the neutral tint, mixed with a little lake; but the colour must be very thin. It will be found that, by giving a little darker touch in parts with another brush, and working up to them with the thin neutral tint, the mountains may be finished at once.

Having thus put the back ground and buildings in light and shade, the mass of trees in the middle ground of the picture will next require attention. Those parts that are intended to be left in the strongest light should receive a slight tint of yellow ochre only; this will be for the masses that project towards the sun. The masses that are likewise on the light side, but not so projecting, may be tinted with king's yellow and a little prussian blue. (Observe, king's yellow is a body colour, it must therefore be used very sparingly when applied to transparent paintings.) The masses of trees in strong shade, are tinted with a mixture of prussian blue, indian red, and a little raw sienna; those masses not quite in such strong shade, with a grey neutral tint only. The masses in the distance are tinted with lake and prussian blue. Care should be taken, in laying on these flat tints, to let the edges of the different masses of trees appear thin and leafy. The whole of the middle and back ground of the picture is now in light and shade.

The road in the fore ground is coloured, in the strong light, with the warmest tint of burnt sienna, indian red, and burnt umber; in the shade, with vandyke brown.

The bridge, in the light parts, is coloured with varied tints, like the strong light of the castle. The water is shaded with neutral tint; the strong light left quite white. The whole of the picture will now be covered, and the first process is finished.

The outline and the breaks in the building forming the broken stones, the architecture of the windows, &c. may now be strengthened with a darker tint of vandyke brown, made in the darkest parts nearly opaque. The touches on the trees in the distance are made with short lines or hatches, laid on with a large camel-hair pencil, with a second tint of the same colour as the first. The finishing of the mass of trees is commenced in the parts in shade, by making a strong tint of blue and burnt sienna. This colour is laid on in small lines or hatches, giving the varied touch according to the way in which the masses hang, making it quite broken and feathery at the edges. The finishing tint may be increased in strength by the addition of a little vandyke brown, in the strongest shades, under the light masses.

No verbal description will give an idea of the touch required to produce foliage by lines, but a few minutes' practice will shew what is best adapted to produce effect. The painter who would produce very highly finished pictures in this style of painting, would do well to study the touches on the trees of some of the spirited line engravings of Woollet and others.

The marking on the light side of the trees is produced by spreading a thin coat of prussian blue and king's yellow over the whole mass, then suffering it to get nearly dry, the hatches forming the foliage are scraped off with a piece of wood, somewhat the shape of the handle of a spoon, cut thin at the edge. With this instrument, or any other that the painter may think best adapted for his purpose, the strong lights are left much more brilliant, and with a great deal less trouble than they could have been formed with the brush. The strongest and most projecting mass will require a coat of burnt sienna spread over the whole, and the lights scraped out in the same way. When the foliage of the whole is finished, the strong touches for the branches may be given with vandyke brown, nearly opaque; and if sparkling lights are required upon them, they are scraped out in the same way as the leaves.

The tree in the foreground is drawn and shaded with vandyke brown, the foliage formed with burnt sienna. This may, when dry, be made still more forcible, by retouching it with vandyke brown, nearly opaque; it will then throw the other parts of the picture to a greater distance, and give effect to the whole. It would only be repeating the instructions on landscape painting to enter upon the mode of finishing every part of this subject. When once the method of using the colours in mastic varnish is known, and also the proper method of sizing the cambric, to make it bear the colour, landscape in transparent blinds, like all other kinds of painting, will entirely depend on the talent of the painter.

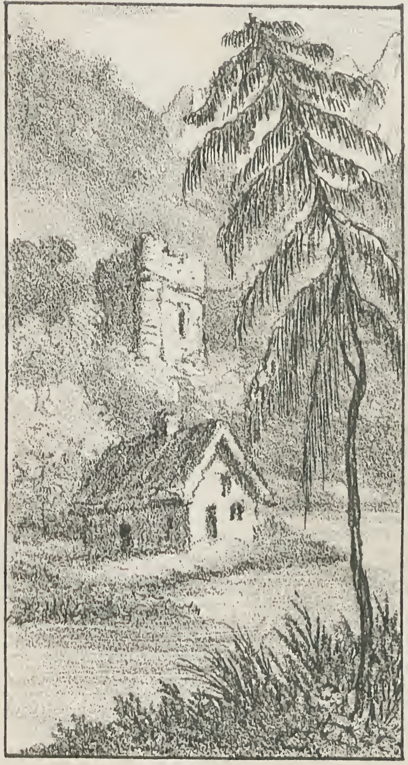
Pictures of storms by sea or land, moonlight pieces, and other subjects of the kind, however beautiful they may be as transparent pictures, are not adapted for use as window blinds, as they exclude too much light. Those subjects should be chosen that have one or two bold objects that can be easily executed, and not too much foliage.

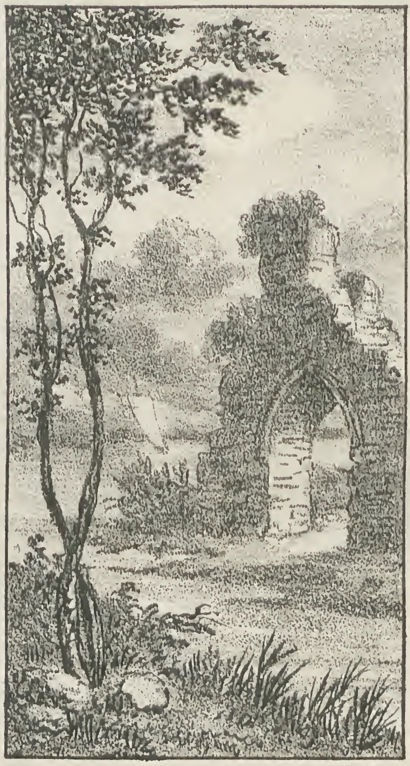
In order to give the young painter an idea of what kind of subjects are best adapted for upright windows, sketches are given in Plate XLV. The back ground must be executed with light delicate colours, and the whole force of light and shade given to the colours in the fore ground. In most of those subjects heavy clouds, or any great space for skies, is purposely avoided, as they require great practice before they can be executed with effect.

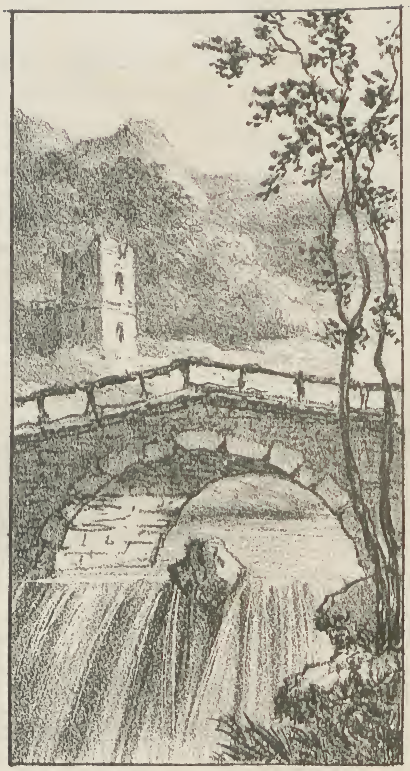
The first subject, the bridge and waterfall, with the church in the distance, will be found very easy, as there is but little drawing required, nor can it well be got out of perspective. When neatly executed, it has a very pleasing effect for a staircase window, and can be done cheap.

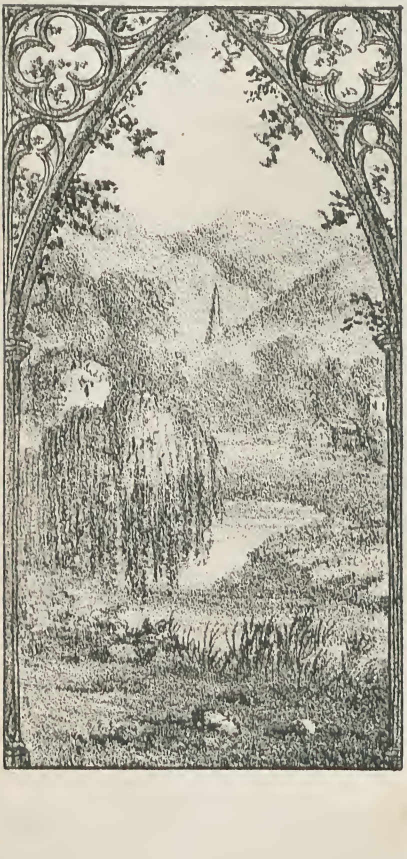
Pl 45.

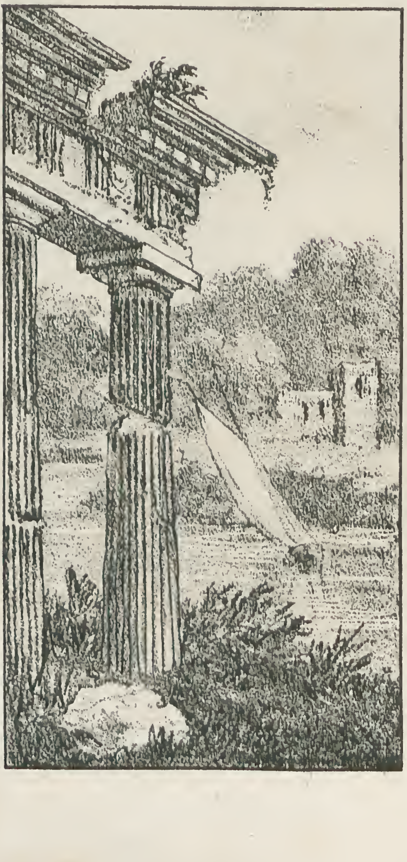
TRANSPARENT BLINDS.

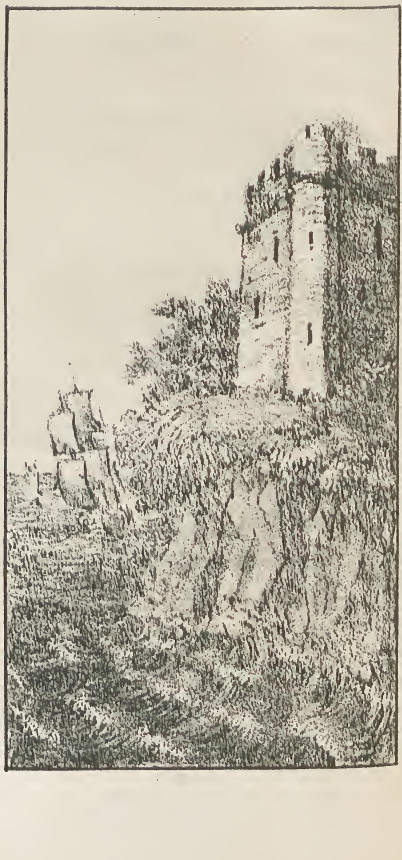












The second subject will require more care. The Gothic ruin will afford an excellent opportunity of shewing the effect of the varied tints. The sky should be bright, and the water should partake of the same colour; letting it shew the reflection of the trees, and the white sail of the boat on its surface, as seen in the copy: the distant mass of trees must be kept very light. The strong colouring must be reserved for the ground on which the ruin stands; and the fore ground, the weeds, &c. round the broken stones, will afford an excellent opportunity for the young student to practise the effect of scraping out.

The third sketch is a view on the Wye. The trees over the cottage must be produced as directed in Plate XLIV. The water will partake of the green hue of the surrounding objects. The fir tree, and the whole of the fore ground, should be kept dark, to throw the other masses to a greater distance.

In the marine view the sky is brought down to the horizon, without much clouding, in order to shew the effect of the gradation of tints on the sky at the setting of the sun. The top must be blue and lake, worked down to the centre of the picture quite thin. The second tint is lake alone, and this is met by the tints of yellow ochre, began on the horizon, where the sea view terminates. The sea, in the extreme distance, must partake of the colour of the sky, and become darker as it approaches the fore ground. The castle will afford an excellent opportunity of shewing the varied tints.

Architecture is not a fit subject for transparent blinds; the masses are too dark and heavy: it is sometimes introduced with good effect in libraries, long rooms, or galleries, where it can be seen from a distance. Where it is required it will be found best to introduce picturesque ruins and broken columns, something in the style of the fifth sketch in this plate.

The most pleasing style, and that best adapted for drawing rooms, where the blinds are subject to the closest inspection, is the sixth sketch, where the principal object is placed in the distance, and the fore ground is occupied with graceful trees, shewing to advantage the peculiar method of scraping out lights upon the foliage, which renders this style of painting so effective.

Plate XLIV. is coloured to shew the effect of the three tints on the sky, and the way in which they blend together. The hills and water, in the distance, have the same glowing tints as the sky. The second mass of land becomes more sedate in the colouring; and the mass on which the temple is placed, being the principal object, receives the light stronger than any other part. The foliage on the large tree, in the fore ground, is scraped out; but the ground previously laid on is of a dark colour. The figures in this case, by the brilliancy of their colouring, and depth of shade, serve to throw the other parts of the landscape to a greater distance.

The mode of straining and sizing blinds, previously pointed out, is the mode in use by most painters who make a profession of painting blinds; but there are other methods of sizing that will produce a much finer effect, but are not so generally useful on account of the increase of expense and trouble. Some size with isinglass only; others produce a most beautiful effect, particularly in moonlight views, or beautiful foliage, by spreading virgin wax over those parts where the strong light is to appear, before any size is applied, and afterwards sizing and painting in the usual way. When the bright lights are to be introduced, the wax is scraped off the cambric, and those parts are more transparent and brilliant than any other parts of the picture.

The usual way of painting transparencies for ball rooms, or public rejoicings, is to nail them on the frame in which they are to be exhibited. The cambric is made transparent by brushing it over with white wax, dissolved in turpentine; the frame must be placed before a fire, and the wax brushed on while hot. The cambric will by this means become beautifully transparent, and the subjects are painted in the usual way, with mastic varnish. In transparent pictures, where jewellery, or sparkling gold, is introduced, a fine effect is produced by cutting those parts out, and pasting tissue paper over the holes. The paper can be made nearly as transparent as glass by varnishing it with mastic varnish; and those parts will have a brilliancy which it would be impossible to produce in any other way.

The remarks on sign and herald painting will be given in the next part, as we shall be obliged to enter upon the proportions of the human figure, and the emblazoning of arms on glass; the directions there given will apply to both purposes, as will be seen when the subject comes under our notice.

PART III.

STAINING GLASS, LEADING, &c.

CHAPTER I.

A BRIEF HISTORY OF THE ART OF STAINING AND PAINTING ON GLASS.

The art of making glass was a very early discovery indeed, as it was scarcely possible to burn bricks without producing vitrification. There is little doubt but the method of producing glass was known to the Egyptians: that it was known to the Jews, at a very early period, is proved by glass being expressly mentioned in the book of Job. The Greek and Roman authors mention glass being used for vessels and other purposes, but as they are silent on the art of staining it with a variety of colours (an art which, if known, would have so materially increased the beauty of their buildings), we may conclude that the application of metallic substances, for this purpose, was unknown to them.

After the dissolution of the Roman empire, in the west, Europe was divided into separate states; the head of each was employed either in preserving his own dominion, or making inroads on the neighbouring territory. Under such circumstances, the warrior's was the only occupation that met with encouragement or reward. Learning, art, and science, were held in contempt by the military chieftain under the feudal system; and were only to be found amidst the gloom of the cloister. The religious fraternities, whose persons and possessions were held sacred by the conflicting parties on all sides, flourished in the midst of war and desolation, and alone found time to feed the nearly extinguished lamp of knowledge, and preserve the records of the elegant and useful arts; and in the process of time, when the superstitious veneration of their admirers produced them abundant riches, it must be admitted, that they employed them in constructing edifices for divine worship, which have never been equalled for grandeur or sublimity of effect, by the proudest temples of any nation. Witness the splendid cathedrals in France and Germany, and those noble ornaments of our own country, at Salisbury, York, Canterbury, Peterborough, Westminster, &c. These magnificent piles were ornamented with all the splendour that the taste, liberality, and industry of the age could produce; and to this eager desire for embellishment, we owe the introduction of coloured glass, which, by throwing its glowing tints on the sculptured arches and delicate tracery of the interior of the buildings, adds so much to their solemnity and grandeur.

The earliest specimens were small pieces of plain glass, of various colours, joined together by leading. But the art of forming pictures with vitrified colours must have been very early discovered, as historical pictures of the first crusade were painted on the windows of the abbey of St. Dennys, so early as the year 1194. The art is said to have been introduced into England in the reign of King John; but it must be acknowledged that we owe the finest productions of ancient glass to foreign professors of the art.

The original discovery of the use of metallic colours in staining glass, is most likely due to the monks, and others, who were in constant pursuit of the philosopher's stone, by means of chemistry; indeed the fusions of gold, silver, copper, and other substances, could not fail to tinge the glass vessel in which they were contained; and though they did not obtain their grand desideratum, the power of transmuting lead to gold, they opened the door by their experiments to the diffusion of chemical knowledge; which, when directed to the production of metallic colours, produced the brilliant specimens of stained glass which adorned the erections of the twelfth, thirteenth, and fourteenth centuries.

After the invention of printing, the writings of the Greeks and Romans, which had for so many ages been preserved in monastic libraries, became more generally diffused, and all men were eager to display their newly-acquired knowledge, by copying the Grecian or Roman style of building. Gothic architecture became neglected, or, if used, was mixed with Grecian, to the destruction of both: hence the incongruous masses of building that were erected during the reign of Elizabeth and James the First; which style of building continued to disfigure the kingdom till Inigo Jones and Sir Christopher Wren introduced a more classic purity of design established on unerring principles.

On the decline of Gothic architecture in England, the art of staining glass became nearly extinct. The theory was preserved by a few writers on glass, but there were no practisers of the art; and so much had it been neglected that, after the fire of London, when painted glass was required for the embellishment of the new churches, it was of necessity obtained from Holland, no one in England being able to produce it.

Within the last century the taste for Gothic architecture has revived, and with it the art of painting on glass, which, from no productions of the art being seen for so long a period, was supposed to be lost; but the beautiful window in the anti-chapel of New College, Oxford, designed by Sir Joshua Reynolds, and executed by Jervas, in the year 1778, and the window in St. George's Chapel, painted by Forrest, from designs by West, proved that, by bestowing adequate remuneration for the labour and talent required, paintings on glass might be produced much finer than the ancient masters could boast of. The public taste for the art was an inducement for many artists of eminence to work upon glass; and the productions of Backler, Must, Miller, Egerton, Russell, and others, have proved that the art, so far from having lost ground, is but approaching perfection. And as the modern discoveries in chemistry will no doubt add to the colours already known, the art of painting and staining glass will become more generally diffused, and this splendid ornament to windows will no longer be confined to Gothic edifices, but appropriate designs invented for every style of architecture.

CHAPTER II.

GENERAL OBSERVATIONS ON STAINING AND PAINTING GLASS, &c.

Previous to commencing the directions in the art of staining and painting glass, it may be necessary to state that care has been used to render the instructions contained in the following chapters as clear and explicit as possible; but as the subjects treated on are, in many instances, intricate experiments in the highest branches of chemistry, cases may occur which require further elucidation, in order to supply this in any difficult experiments where there is but a trifling difference in the effect produced. The whole processes, in both instances, have been given, so that any obscurity or omission in one may be made clear or found in the other: it is therefore of great importance that the student should give every direction a most attentive perusal, or in the event of being disappointed in producing the stains and colours, he will have the candour to attribute it to the true cause, his own impatience, rather than the want of full and repeated information.

Painting and staining glass differs from any of the styles of painting that have hitherto been presented to the notice of the student in this work, in every particular. First, the substance upon which the picture is produced. Secondly, the materials from which the colours are formed. Thirdly, in the vehicles for using them. And lastly, in the method of fixing the colour. The order of the following chapters will be according to this division:—

The description and application of the materials from which glass of different kinds is formed, will be found in this chapter:

The colours which are used in painting and staining glass are produced principally from metallic substances, many of which are reduced to powder by the application of solvents, as applied in chemical experiments. Copious and plain directions for effecting this object will be found under the head, Preparation of Colours.

The vehicle which is used to lay the colours on the glass is called flux. This is composed of soft glass and other vitreous bodies, which, being much softer than the glass that is painted upon, vitrifies or runs with a less degree of heat, and consequently mixes with the metallic colours, when in a state of fusion, and makes them adhere to the glass.

The method of fixing the colours is by annealing or burning the metals to the glass; that is, by heating the glass to a certain degree, without producing vitrification of the substance painted on, and yet sufficient to vitrify the fluxing body that is mixed with the colours.

The student may rely with the greatest confidence on the directions given for preparing the colours from the substances used in painting, the fluxes, and likewise their application and annealing, as no direction is given under those heads, that has not been fairly and repeatedly proved to be correct. This was deemed a necessary precaution, to avoid any errors in an art at present in the hands of but few persons, and therefore the omissions or misdirections could not be easily detected by any other method than by actual experiment.

The painter on glass will find it of importance to have some knowledge of the substance upon which he is working; and even the glazier must feel a desire to be acquainted with the mode in which the material is formed that so often passes through his hands, and by the use of which he obtains his subsistence; to both, the following account of the materials used in making glass cannot fail to be interesting and useful.

Glass is a hard, transparent, brittle substance, formed from stones, sand, and salt, vitrified or melted together by means of heat.

The body or substance of the glass is formed of sand, flint, talc spar, and other stony substances.

Sand is at present almost the only kind of substance which is used in England in the manufacture of glass, and it is far preferable to flints and other stones, as it does not require the tedious and expensive process of previous calcination to reduce it to powder; and it can be produced in any quantity demanded, without any great variation in its quality.

The sand most fit for making white transparent glass is that brought from Lynn, in Norfolk, by the name of which place it is distinguished; it is also procured from Maidstone, in Kent, and other parts of the kingdom. It is white and shining, and, if examined by means of a microscope, appears to be small fragments of rock crystal, from which it does not seem, by any experiments, to differ in its qualities. The introduction of this sand in the manufacture of glass in this country has nearly superseded the use of flints, from which it in no way differs, but in being rather slower in vitrifying, which makes it require a greater portion of flux and fire: but, to compensate for this disadvantage, it is of a much clearer colour, and free from the tinging bodies which injure the colour of the glass, and occasion other embarrassments where flint is used. The sand requires no previous preparation for common glass, especially where nitre is used, which burns out the sulphurous matter from any filth of the nature of animal or vegetable substances, and calcines them to an earth no way injurious to the glass. But for nicer purposes, the sand may be prepared by washing, or by placing a quantity in a vessel, and keeping it stirred about, while water is continually poured upon it. The impure particles and dirt will rise to the surface of the water, and, if the vessel is a little inclined, will run off with it. For coarser kinds of glass, other sorts of sand are used, which are cheaper, and easily procured.

Flints are still used for making glass where the sand before mentioned cannot be procured. Those fit for this purpose are of a clear transparent black; all such as are marbled with brown or yellow spots are rejected, as they probably contain iron, which would be very injurious to the colour of the glass, if it got mixed with it. Flints always require calcination before they are used in the composition of glass, to reduce them to a texture that will admit of their being powdered; and they are not susceptible of vitrification till a change is produced in them by calcination. This calcination must be performed by first dipping them in water, and then putting them in a furnace of a moderate heat, and continuing them there till they become entirely white, even to the most interior parts. This will of course require a greater or less time, according to their magnitude, and the degree of heat of the furnace. When they are quite white, they are taken out of the fire, and instantly immersed in cold water, where they must remain till cold, and they will then be found, if duly calcined, to be cracked and shivered into flaky pieces, which are so soft and brittle as to be easily reduced to powder. They are levigated by means of mills or other implements, according to the quantity required.

Talc, of various species, is sometimes used instead of sand or flint, but never in large work. It requires calcination before it will vitrify, but not so great a heat as is required to calcine flints.

Several other stones may be converted into glass, but their use, and the process of calcining them, is the same as flint; and as they are only useful where the proper sand or flint cannot be procured, it would be useless to enumerate them. We will therefore pass on to the second class of subjects used in the formation of glass, called Fluxes.

The materials used for fluxes in the formation of glass, are lead, pearlashes, nitre, sea salt, borax, arsenic, smith's clinkers, and wood ashes.

Lead is the most important flux in the British manufacture of what is called flint glass, when it is brought, by calcination, to the state of minium, or what is called red lead. This, used in due proportion, makes a more tough and firm glass than can be produced from salt alone, and is procured at a small expense. There is no necessity for detailing the way in which minium is formed from lead by calcination, as it is done in works appropriated to that purpose, and the glass-maker always purchases it ready prepared.

Pearlashes form the next leading article used as flux for glass, particularly where perfect transparency is wanted. Salts are preferable as a flux to lead; and as pearlashes contain a much greater quantity of the fixed alkaline salts in a purer state, than can be procured from other vegetable substances, the use of them is more general and of greater service than any other.

The fixed alkaline salt, called pearlash, is prepared in Germany, Russia, and Poland, by melting the salt out of the ashes of burnt wood, and drying them by evaporating the moisture in a moderately-heated furnace. The quality of pearlash is distinguished by its equal and white appearance. Any brownish cast in particular parts, or greyness in the whole, is a certain criterion of its not being good. This must however be confined to such as is perfectly dry, which can only well be on the first opening of the cask; for when exposed to the air, it will soon deliquate and look brown or greyish, from a semi-transparency it acquires in that deliquating state. It is liable to adulteration, by being mixed with sea salt; but this, if not done immoderately, does not injure the pearlash so far as to prevent its use, either in the manufacture, staining, or painting of glass.

Nitre, in its refined state, commonly called saltpetre, is used in the composition of glass, not only as a flux, but as a clearer, or means of taking away any discolour from the glass. This latter quality will be mentioned under a future head. As a flux it is less powerful than fixed alkaline salts of vegetables. The saltpetre which is used here, is brought from the East Indies, in the form of what is called crude nitre, and, in commercial language, rough petre, in which state it is mixed with some proportion of common salt. It is then refined, and bought in that state for glass. If it is obtained in crystals of such a size that the figure of them may be distinguishable: there is no hazard of any adulteration, as no heterogeneous matter can be made a proper part of such crystals, and therefore, if they appear bright and colourless, their purity cannot be doubted.

Sea salt is also frequently used as a flux in making various kinds of glass, and it has a very strong power of promoting vitrification, even in some of the most obdurate bodies. Before it can be used either in making or staining glass, it is brought into a dry state by what is called decrepitation; that is, by keeping it in a moderate heat till it ceases crackling, before it is put, with the other ingredients, into a fusing heat, otherwise it will injure the mass by the little explosive bursts of its parts. It must not, after decrepitation, be exposed to the air, or it will regain its power of crackling in a short time.

Borax is the most powerful flux of all the salts, or of any known substance whatever; but, on account of its great price, can only be admitted into the composition of the most expensive glass; it is brought from the East Indies, under the name of tincal, and is refined by druggists and others for glass makers; its purity is ascertained by the large size and clearness of the crystals. The preparation of borax for the composition of glass, is to calcine it with a gentle heat, which converts it to a flaky feathery kind of substance, in which state it is easily ground to powder, and mixed with the other ingredients.

Arsenic is sometimes used as a flux, but is more useful for painting on enamel than in the composition of glass, as will be shewn in the proper place.

Wood ashes, from burnt broom, furze, or any other vegetables, are used as a flux, for the common bottle or green glass. The ashes must be taken in their original state, consisting of the calcined earth, of the vegetable, and their luxuriate or alkaline salt, as their virtue lies in their original manner of commixture; for this very extraordinary circumstance attends them, that though in their primitive state they vitrify easily, and act as a strong flux to sand, flint, or other stones; yet if the salts are separated from the earth, by solution in water, the earth from that time becomes extremely repugnant to vitrification; and though the same salts which were taken away from it, or even a much larger quantity, are again added to it, it resists their fluxing power, and displays a nature entirely different from that which it appeared to have before its separation from the salts. The only preparation necessary for wood ashes, as flux for glass, is sifting, to prevent any charcoal or unburnt pieces of the wood from mixing with them; and care should be used to keep them free from moisture, or the salts will deliquate and run from the earth.

THE MATERIALS USED TO MAKE GLASS COLOURLESS.

The substances from which glass is made have been shewn; but all of them, and most of the fluxes, if suffered to vitrify alone, would produce a transparent glass, though it would not be perfectly clear, and of one colour, unless other substances were mixed with it, to make it so. The principal substance used for this purpose, is nitre or saltpetre, which has the property of mixing with bodies containing phlogistic and sulphurous matter, when brought in contact with them in a certain degree of heat. These discolouring bodies will then burn and be destroyed.

Magnesia is another substance employed for rendering glass colourless. It is a fossil, partaking of the nature of iron ore, but contains a very inconsiderable quantity of that metal. When fused with glass of any kind, it readily vitrifies, and tinges the glass of a strong red purple colour, but not clear and bright. In consequence of this quality it is used in destroying any slight yellowish or greenish tinge in glass, on the principle of the formation of neutral tints in water colour. The three primitive colours, yellow, red, and blue, when mixed in due proportion, destroy each other, and produce the effect of grey in the case of opaque bodies, and black in such as are transparent. The tinge of magnesia in glass being purple, which is a compound of blue and red, and being added to the yellow tinge in glass, destroys the appearance of it, particularly in the green, as the proportion of red in the magnesia is greater than the blue. The glass now assumes a black tint, though not so strong as to be perceptible to the eye, without comparing it with other glass: it is for this reason that nitre, which destroys the colouring matter, is to be preferred in most cases to magnesia, which only changes it.

It is not intended to enter upon the method of manufacturing glass, from the before-mentioned ingredients, as that would require more space than the limits of this work can afford; nor would it be of the slightest use to the glass painter or glazier generally. The following most approved and well-established recipes, will shew the student the quantities used of the various substances in the formation of different kinds of glass.

BEST WHITE FLINT GLASS.

	lbs.
White sand	120
Red lead	50
Pearlash	40
Nitre	20
Magnesia	0 5*oz.*

SECOND WHITE FLINT GLASS.

	lbs.
White sand	120
Pearlash	54
Red lead	36
Nitre	12
Magnesia	0 6*oz.*

COMMON FLINT GLASS FOR LAMPS.

	lbs.	
White sand	120	
Pearl ash	35	
Red lead	40	
Nitre	13	
Arsenic	6	
Magnesia	0	4*oz.*

BEST COMPOSITION FOR PLATE GLASS.

	lbs.
White sand, purified	60
Pearlash	25
Saltpetre	15
Borax	7

COMPOSITION FOR BEST CROWN GLASS.

	lbs.	
White sand	60	
Pearlash	30	
Saltpetre	15	
Borax	1	
Arsenic	0	8*oz.*

COMPOSITION FOR A CHEAPER CROWN GLASS.

	lbs.
White sand	60
Pearlash	25
Common salt	10
Nitre	5
Arsenic	2
Magnesia	2½

COMMON GREEN WINDOW GLASS.

	lbs.	
White sand	60	
Pearlash	30	
Common salt	10	
Arsenic	2	
Magnesia	0	2*oz.*

It will be seen from the above recipes, that the compositions for all kinds of glass are nearly the same, only varying in their quantities. There is of course a great difference in the expense of manufacturing it according to the purposes to which it is to be applied. The sort of glass best adapted for painting on is that which is most transparent and free from colour, viz. the best crown glass.

CHAPTER III.

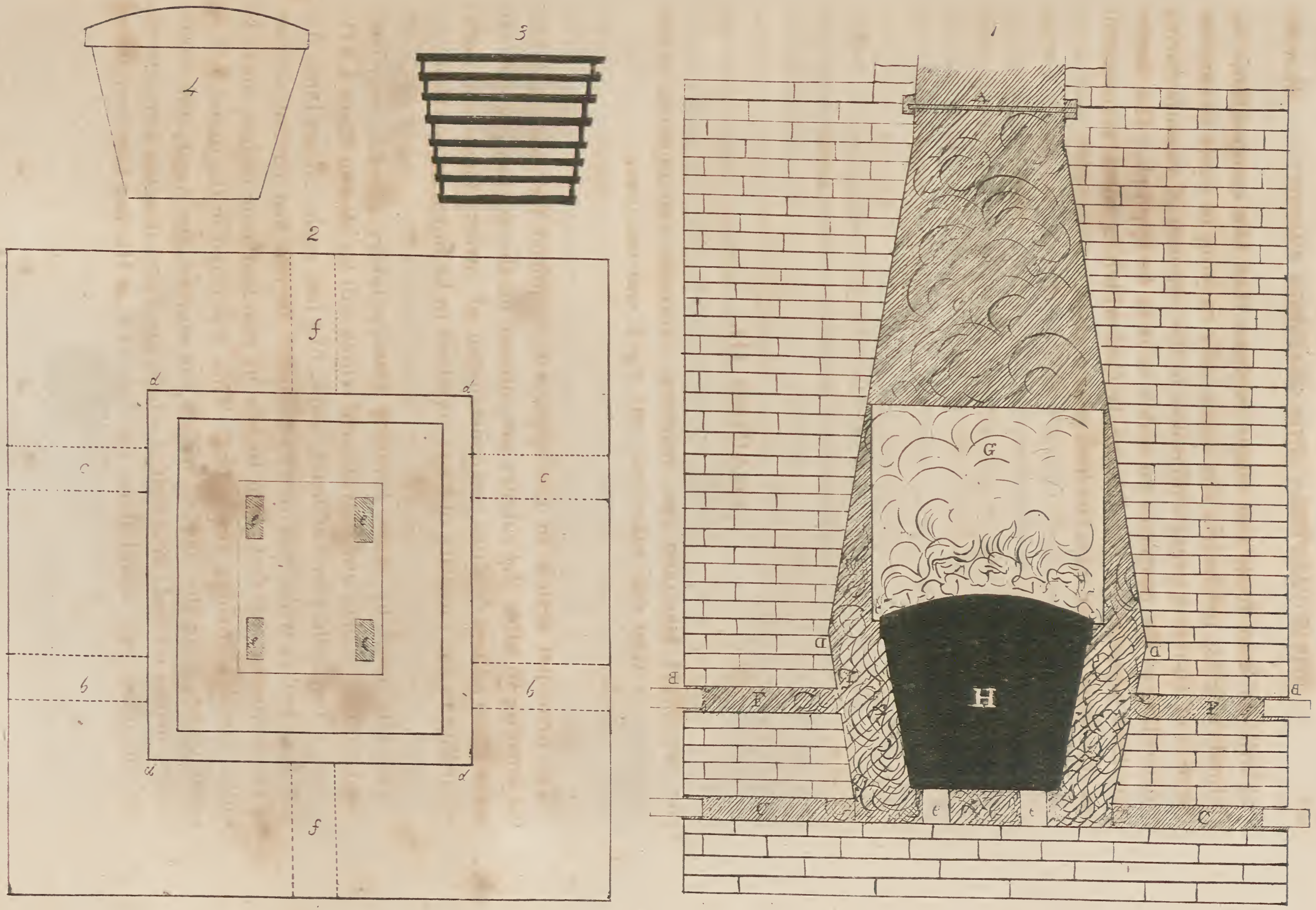
THE APPARATUS REQUIRED FOR STAINING, PAINTING, AND BURNING GLASS, ALSO FOR PREPARING THE FLUX AND COLOURS.

THE principal article in the apparatus required for glass, is a kiln for burning it, after the colours are spread on the surface, in order to make them adhere. Kilns are constructed of various forms and sizes, according to the quantity of glass required to be burnt at one time.

The kiln used by many eminent glass painters is of a very easy construction; a plan and elevation of which will be seen in Plate LXIV. *a*, *a*, *a*, *a*, is a solid piece of brick work, five feet eight inches long, five feet four inches wide, and one foot high. In the last course a space in the centre of two feet eight inches by two feet four inches, must be built with Stourbridge fire bricks. This is marked in the plan *b*, *b*, *b*, *b*; eight inches from the angles, within the square, are fixed four Stourbridge bricks on end; one half of which are fixed into the lower work, and the other half stand above the face of it. Having thus completed

ANNEALLING KILN

Plate LXIV


4
3
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B
F
C

the foundation, commence the walls round the space covered with the Stourbridge bricks, by placing a course of them on the inside, and completing to the outside of the wall with common brick. In this course must be left four air-flues, of the width and thickness of a brick, in the places shewn by dotted lines marked *c*, *c*, *c*, *c*. The walls are then to be carried up with Stourbridge bricks inside, and common bricks outside, to the height of sixteen inches, making them slant back three inches on each side, so that when completed they will measure in clear three feet two inches by two feet ten inches. In carrying up the walls take care to leave air-flues within two courses of the top, and in the spaces between the flues left in the bottom course. The walls, when completed to this height, should not be less than fourteen inches thick. Upon this wall carry up the brickwork to the height of five feet, gradually diminishing to the size of a common flue, leaving in the side most convenient the opening for the mouth of the muffle, the shape of which corresponds with the brickwork, leaving a space of four inches on all sides of it, so that the fire may envelope it every way. In the front of the muffle there is a trumpet-shaped tube, the large end of which is cast in the side of the muffle, the small end projecting a short distance beyond the wall, so that a person looking through the tube may observe the state of the glass within the muffle, Fig. 3. One side of the muffle is taken away in order to shew the iron plates within it. These plates are each three-eighths of an inch in thickness, and made to fit the muffle, increasing in size as they get nearer the top. The legs at the corners of the plates should be one inch long, and of course the plates will be that much apart. The legs for supporting the upper plates are attached to the under, as they not only serve to keep them apart from each other, but are used as handles to take them out of the kiln.

Fig. 3. shews the plates one upon the other, with the glass between them.

Fig. 4. is one of the shelves belonging to the muffle: the projecting pieces at the angles, when bent, form the legs.

This kiln is calculated for carrying on an extensive business, as thirty-three feet of glass may be burnt at one time; but the glass can be burnt quite as well in a kiln of the same construction on a much smaller scale.

Plate LXV. contains the ground plan, elevation, and section of another kiln, which may be erected in a smaller space, and requires less fuel to vitrify the colours to the glass, and is therefore better adapted for carrying on a less extensive business than the kiln before described.

Fig. 1. is the elevation, shewing the front of the kiln when properly erected. *c* is the ash-hole; *b* the iron door, by which the kiln is supplied with fuel; *a* is the front of the mouth of the kiln. This is made with sheet iron: by turning the handle in the centre, the aperture above and below it opens and shuts, so that the state of the glass may be seen while burning. In the flue, at some distance above the mouth of the kiln, a damper is placed, to regulate the heat.

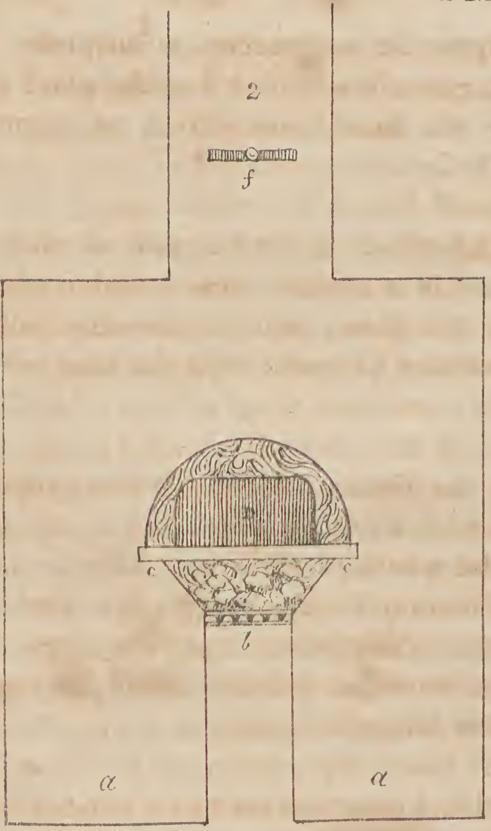
Fig. 2. is the section. *a, a,* is brick work, carried up to the height of two feet nine inches, leaving the space *b* for an ash-hole. Over the ash-hole is placed an iron bar, to support the grating at *b*. The brick work is then carried up two courses from the grating; the sides sloping three inches back from the upright, as seen at *c, c*. On this wall two stout iron bars are laid to support the muffle *d;* these bars are twenty inches long, and an inch thick: from the place where the bar rests an arch is turned, leaving a clear space of four inches round the muffle, so that the flames may play round it on all sides. The flue is carried up at the back from the top of the wall that supports the grating. In the flue, eighteen inches from the top of the arch, is fixed, in front, a common sliding iron damper; this is the plan marked *f*. The flue may be finished as most convenient.

Fig. 3. is the ground plan. *a, a,* shews the thickness of the walls; *d, d,* the grating and the sloping brick work; *e* the flue.

Plate LXV.

SMALL KILN

for Glass



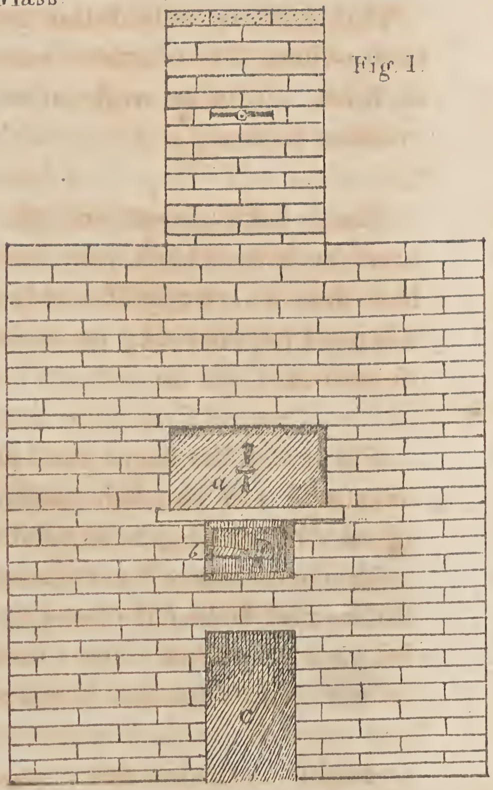
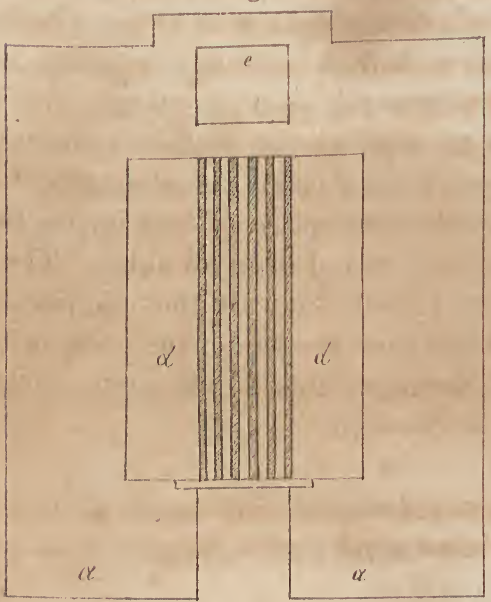


Fig. 1.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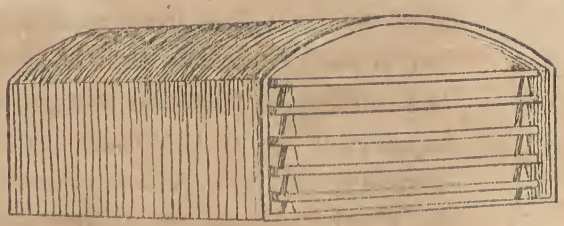

4

AIR FURNACE for STAINED GLASS

Plate LXV.

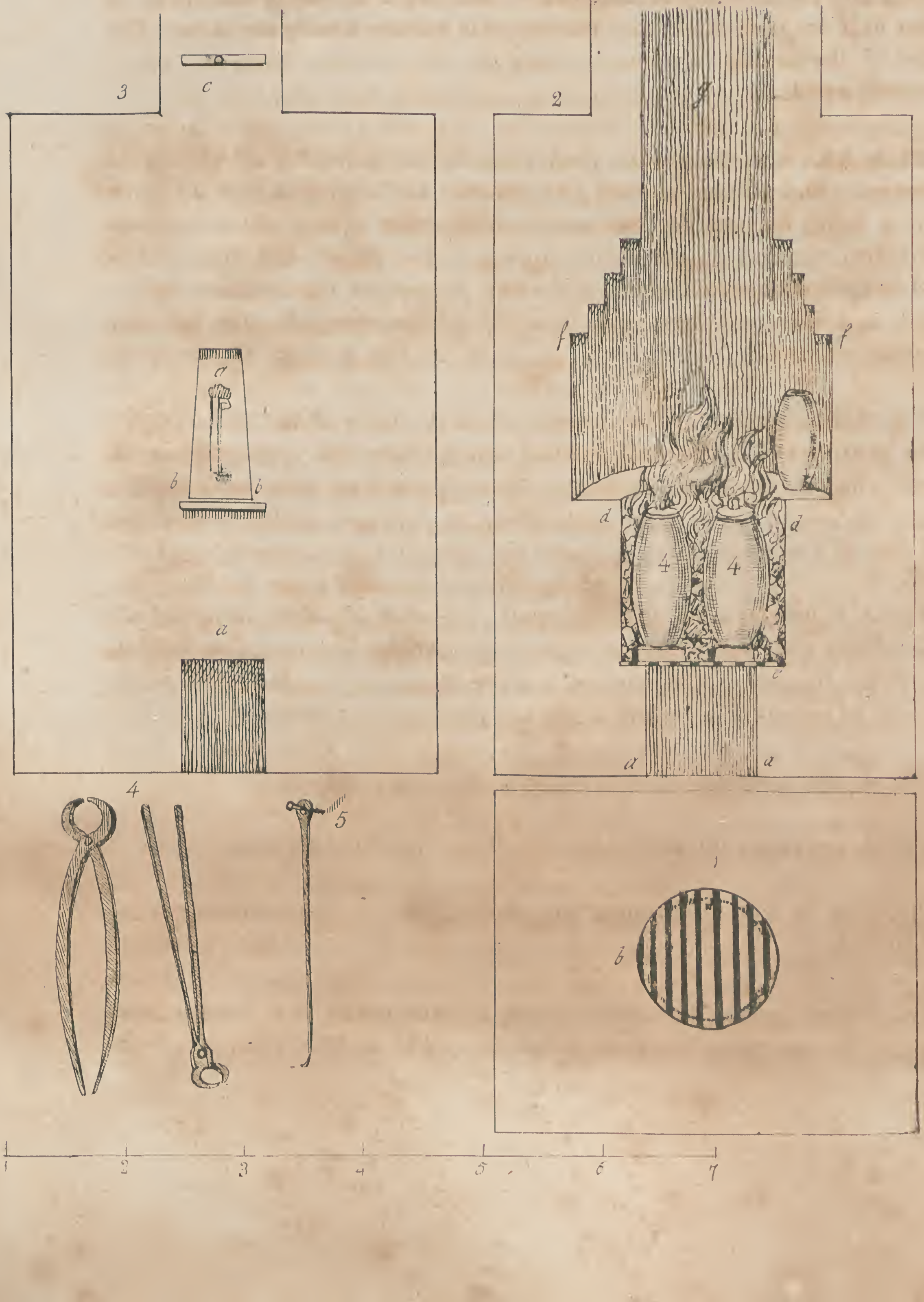

3
c
2
g
f
f
a
b
b
d
d
4
4
e
a
a
a
4
5
1
b
1
2
3
4
5
6
7

Fig. 4. is the muffle. This is merely an iron box, with one end left open; it is eight inches high, two feet in length, and sixteen inches wide; the corners are rounded off at the top; the sides should be at least half an inch thick, and the top and bottom nearly an inch. The front of the muffle is open, to shew the five shelves lying one above another within it.

Plate LXV*. is the ground plan, section, and elevation of a small air furnace. Fig. 1., the ground plan, shews the base, four feet by three and a half, leaving in the centre a circular space of ten inches diameter, marked on the dotted lines *a*, *a*, and an ash-hole four inches and a half wide, marked *b*. This wall is carried up eighteen inches high, and then set back two inches, to allow room for the circular grating marked *c*

Fig. 2. is a section of the furnace; *a*, *a*, is the wall to the grating; c the grating; *d*, *d*, the wall carried up, leaving the circular space in centre, but no aperture in front. At *d*, *d*, the wall sets back half a brick all round; it is then carried up to *f*, *f*, and gathered over to the size of a common flue: *g* shews the space for the damper.

Fig. 3. is an elevation of the furnace; *a*, ash-hole; *b*, *b*, an aperture, nine inches wide and fourteen high, to give room for placing crucibles, &c. in the furnace in the centre; *c* is the damper; *d* an iron door, with handle, to cover the aperture when the furnace is at work.

Fig. 3. are crucibles of different shapes.

Fig. 4. are tongs for taking the crucibles out of the furnace.

Fig. 5. is an iron instrument for stirring the vitrified substances in the crucible.

An earthen pestle and mortar, and an iron pestle and mortar, are required for pounding the flux, metal, &c. The earthen mortar is best for pounding any preparation containing metal. The iron mortar is required for reducing the glass and other hard substances to powder. A lawn sieve and a horse-hair sieve are required for sifting the different materials after they are pounded.

A slab and muller of porphyry, or if porphyry cannot be easily procured of thick plate glass, will be wanted to grind the substances on after they have been pounded and sifted. The slab should be at least fifteen inches square. The brushes and pencils required are the same as those used in oil or water colour painting.

The easel should be square, made something like a music stand. It may be made large enough to paint a large square of glass on; the shelf should have a groove in it, to prevent the glass slipping off. By referring to Fig. 6., a drawing of the easel may be seen. *a*, *a*, is the shelf, which may be raised or lowered at pleasure, by means of pegs. The small points at each angle of the easel is to fix it tight to the table, as the slightest movement might destroy the labour of a week.

There are other articles required, such as palette knives, and phials, to hold the colours, &c. but they are too well known to require description.

CHAPTER IV.

THE NATURE AND PROPERTIES OF THE SUBSTANCES USED IN STAINING AND PAINTING GLASS, WITH THE METHOD OF PREPARING THEM FOR USE.

FLUX.

Minium, or red lead, is used in forming flux; it requires no previous preparation, and can always be purchased sufficiently pure at the colour shops.

Borax is a salt; it is sold in a hard state; it is not expensive, and is of the greatest service in the preparation of fluxes, as it promotes the vitrification, or running together of harder vitreous bodies. Before it can be used it must be calcined; a very moderate degree of heat will reduce it to a fluid state: it will calcine sufficiently if put in a crucible, or iron ladle, and held over the fire for a short time, till it vitrifies and assumes the appearance of soap bubbles. This can be done either in large or small quantities equally well. When cold, reduce it to powder in the mortar, and pass it through the lawn sieve, and it is fit for use.

Common salt is used in flux, but requires no preparation.

Sand flint, and fixed alkaline salts are, by old writers, said to be necessary to form fluxes; but as broken flint glass, which is so easily procured, is made from these materials, in forming the flux for glass it is not necessary to trouble the practitioner with directions to reduce them to a state fit for use. All that is required in preparing broken flint glass for forming a flux, is to pound it very fine in an iron mortar, and pass it through a lawn sieve.

SUBSTANCES USED IN STAINS AND COLOURS.

GOLD.

This metal, from its great value, is very sparingly used in the preparation of colours in the present day; it is the foundation of the beautiful ruby colour, so much esteemed in ancient glass. In order to use it in painting, like every other metal, it must be reduced to powder. There are several methods pointed out by chemists to effect this, but the following may be used with certainty of success :

"Take of pure spirits of nitre eight ounces, add to it two ounces of sal ammoniac scraped perfectly clean, and finely powdered; this will convert the nitre into what is called aqua regia. Put four ounces of the aqua regia into a proper phial, and half an ounce of pure gold (that gold is best which is procured from the refiners, under the name of grain gold). If the phial is put under a very gentle heat, in the course of a few hours the gold will entirely disappear. While it is dissolving, put the same quantity of aqua regia into another phial, and to this put tin filings, or cuttings of pure block tin; taking care to put in very little tin at a time, or the aqua regia will heat so much that it will boil over, or break the phial. Keep putting in the tin as long as any brisk effervescence arises. When the tin and gold are both dissolved, let fall twenty drops of the solution of gold into a half pint glass of spring water, and immediately afterwards drop twenty more of the solution of tin into the same water, when the gold will be immediately precipitated into a red powder at the bottom of the glass: this must be repeated, twenty drops at a time from each phial, till the whole of the gold is reduced to a red powder. When it is quite settled pour off the clear liquid as near the gold as can be, without disturbing it, and fill the glass with clear spring water; this must be poured off likewise, and the little that remains must be absorbed by a dry sponge, taking care that it does not touch the gold. When the water is all drawn off from the powder, lay the gold on a slab to dry, with a clean tumbler glass turned down upon it to prevent any dust or foulness from getting near it. This powder, if properly precipitated, is of a most beautiful red purple; before it is quite dry, it must be ground on the glass slab, with the proper quantity of flux and water. When mixed with the flux, put it by in a clean phial for use, marking it 'Purple of Gold.'"

The following mode of obtaining the precipitate of gold and tin, in small quantities, was used by a glass painter of eminence, purposely for this work:—

"Dissolve six pennyweights of fine gold in aqua regia, which was made as follows:—One ounce of spirits of nitre, two ounces of spirits of salts, and three ounces of boiling water. This solution was put in a Florence flask, which stood in a little dry sand near the fire, the gold was dissolved in less than an hour. Some tin was then melted in an iron ladle, and thrown into a basin filled with cold water; the pure tin sunk speedily to the bottom, leaving the dross floating on the surface. Small bits of the purified tin were put into a basin, into which was put the same quantity of aqua regia as was put in the flask with the gold. A plate should be put over the basin to keep out the dust, and yet not so completely to cover it as to prevent the fume from escaping, otherwise it will break the basin. When the tin was dissolved, which took three or four hours, the liquid was poured from the basin into a bottle for use, and two or three pieces of tin put to it, for any of the acid that remained in the solution to act upon, and if any effervescence took place when the tin was put in, a little cold water was added. The solution of tin was of a pure dark colour.

"The tin and gold being dissolved, a large rummer was nearly filled with boiling water, and a few drops of the solution of gold dropped into it till the water in the rummer became a faint yellow or straw colour. A few drops of the solution of tin were then dropped in the rummer, when the precipitation of the gold immediately took place, and it descended to the bottom of the rummer a beautiful crimson powder. The contents of the rummer were thrown into a white washhand basin, and the same process was repeated till the gold was exhausted. The crimson powder was now at the bottom of the basin, the liquid was carefully poured away, and the gold washed with four waters, all hot. After the last water was poured away, the crimson powder was laid upon some blotting paper, under which was a piece of linen; by this means the whole of the water was drained from the powder, which, before it got dry, was mixed with the proper proportion of flux; which was afterwards ground very finely in water on a glass slab. This colour was applied to some glass then painting, and produced the finest purple imaginable, even in its unburnt state, but when burnt the colour was truly what the old writers style—'glorious.' When the powder and the flux are properly ground together, let them dry on the slab, and then scrape the mixture off, and put it in a clean phial for use."

Many persons have tried to produce this colour from gold with a more elaborate and costly apparatus, but it is impossible that it could be effected better than by the above simple and economical mode.

SILVER.

This metal is very extensively used in producing yellow stains and colours on glass; like gold, before it can be used it must be reduced to a powder. The following is the best method of dissolving silver for staining glass:—

To four ounces of nitreous acid put four pennyweights of virgin silver; let it stand in a phial, and dissolve gently. If put near the fire, or exposed to a slight degree of heat, it will dissolve in a few hours, but it is better to let it stand all night, and dissolve gradually. When it is dissolved, get a washhand basin three parts full of boiling water and pour the solution into it, and directly afterwards throw in a handful of common salt; the water will effervesce, and the silver will be precipitated to the bottom of the basin in the form of a white powder. As soon as it is settled, pour off the liquid as near as you can, without disturbing the silver; and then pour fresh boiling water into the basin, which pour off as before. When the powder has settled, this must be repeated three or four times, till the water has lost all its acidity, which may be tried by dipping the end of the finger into the liquid, and applying it to the tongue; then pour off the liquid, and absorb as much as you can with a dry sponge, without touching the powder. The basin must be held towards the fire till the powder is quite dry, which may then be put in a clean phial for use.

The above may be kept in its liquid state for some time; it is then called nitrate of silver. A small quantity may be made as follows:—To two ounces of nitric acid pour three ounces of water; put it into a large phial, and keep putting in silver, at different times, till the acid will dissolve no more. Let it stand for some time in a gentle heat, and then pour the liquid into another phial, and keep it for use.

Second, If the nitrate of silver is precipitated in a washhand basin full of water, in which a large spoonful of carbonate of soda has been dissolved, it will sink to the bottom a white powder as before, and must be washed and dried as directed above. This is called carbonate of silver.

Third, Dissolve two ounces of phosphate of soda in a large basin of water, and pour into it one ounce of nitrate of silver, and the silver will precipitate into a yellowish powder, which must be washed and dried as before directed; this is called phosphate of silver.

There are many other ways of dissolving silver, but as the above will answer every purpose for staining or painting on glass, it is useless to detail them. In some cases silver is used with other metals by being melted in a crucible.

COPPER

Is not much used in painting on glass, but as several of the recipes from the old masters require it, the following is the best method of reducing it to powder:—

Put thin plates or scales of copper into a crucible, and then put flower of sulphur over it, till the surface is covered about the sixteenth of an inch thick; then put another plate of copper, over which put a layer of sulphur, and so on till the crucible is nearly full, or you have as much copper as you require; then put the crucible in the fire till it is red hot. It requires a strong fire for two hours, when the copper will be found converted into a dark red powder, which must be well ground in water and sifted. Copper prepared in this way is, in old books, called "ferretti of Spain."

Copper can likewise be precipitated to powder in almost any acid, but there is no necessity for taking the trouble, as common green vitriol (which is a solution of copper), if thrown into hot water, mixed with some pearlash, will cause the copper to sink to the bottom of the vessel a red powder, which may be dried and ground for use.

TIN.

The way in which tin may be reduced to powder in aqua regia, has been stated before, when treating on the precipitation of gold.

The white oxide of tin is procured by putting one ounce of pure block tin in a basin; cover this with water to the height of an inch; then add spirits of salts (muriatic acid) in about half the quantity, and pour in about one ounce of spirits of nitre. This will effervesce for a time: when it ceases, the oxide of tin will be at the bottom of the basin, in a fine white powder: wash in three waters as before directed. This is very useful for diapering glass when mixed with a proper proportion of flux.

IRON.

This metal can be reduced to powder in a variety of ways, but as the best preparation of it, for glass, can be purchased so cheap, without trouble, at all colour shops, under the name of crocus (crocus martis), it will not be worth the trouble of reducing. That crocus is best which is of a fine reddish purple colour, and not gritty between the finger and thumb; but however good it may be, it will require grinding and sifting before it is fit to use. All outlines and strong shadows are formed with crocus, with a proper quantity of flux.

Some old writers recommend the sulphate of iron in producing a dark red, or flesh tint; the way to procure it is therefore added, but it is of no great service, and a very difficult disagreeable preparation.

Sulphate of iron may be produced by taking one pound of green vitriol in lumps; dry it well in a ladle over the fire, and afterwards calcine it in a crucible till it is dissolved. Ascertain the colour by dipping a tobacco pipe in the fluid; if it is a good red, it is burnt enough. Having got a large pan full of water ready, out of doors, take the crucible from the fire, with the tongs, and pour the burning vitriol into the water, getting away from it yourself as fast as possible, as it will immediately send forth clouds of red fume, which is not only unwholesome, but will tinge every part of your dress red. After the fume has subsided, the sulphate of iron will be found in a red powder at the bottom of the pan. It must be washed in three or four waters, and ground and sifted for use.

ULTRA-MARINE.

Ultra-marine is a preparation from lapis lazuli: it is the finest blue that can be used in any kind of painting, but, from its great expense and light body, is used on glass very sparingly. Ultra-marine can be purchased at any colour shop; and as it is sold as an impalpable powder, unless made up in cakes for water colours, it is fit for use without further preparation.

COBALT.

This is a mineral that can be purchased of any druggist: it requires to be calcined, pounded, and sifted for use. It is used in forming blues.

ZAFFRE.

Zaffre is the remains of cobalt after calcination. It is used by enamellers for a dark blue, but is too opaque for glass; used with a great proportion of flux, it will produce a tolerably transparent grey. It requires pounding, sifting, and grinding.

SMALT.

This is easily procured, and is very cheap, and with the proper mixture is useful for forming fine light blue on glass. It is very difficult to vitrify on account of its hardness, and requires an exceedingly soft flux. Smalt is bought in powder, but requires grinding and sifting for use.

ANTIMONY.

Antimony is used with silver to produce yellow and red stains. It can be used in its crude state, as it will pound and grind very well with water for glass; it is used with silver, and then both are melted in a crucible together.

Red ochre and venetian red are colours so well known that they require no description.

Manganese is a dark mineral that is useful for black and shading colours; it is prepared by pounding, sifting, and grinding.

Umber is used for browns and shading tints. It is prepared by being burnt in a crucible till the lumps appear quite black, and in that state thrown into a basin full of hot water, when it will part and crack. Grind it finely for use.

CHAPTER V.

THE MIXTURE OF THE VARIOUS SUBSTANCES TO PRODUCE FLUX, STAIN, AND COLOUR.

Having, in the last chapter, stated the substances used, it will now be necessary to shew how to mix them together, so that the flux, stain, and colour, may be produced.

Flux is the vehicle by which the different colours are fixed to the glass, and is of the same use that varnish, oil, gum-water, size, &c. are in oil or water-colour painting. The flux is composed of glass and other vitreous bodies, much softer than the glass upon which the painting is made, so that when the whole is burnt in the kiln, the flux, with which all the colours are mixed, becomes fluid by heat, and fixes them to the glass, and when cold forms so hard a substance as almost to defy the power of time to remove it. It will be seen, then, that the due preparation of the flux is one of the principal things to be attended to in painting on glass, as it is useless to go to the trouble and expense of preparing colours, if the proper means are not used to bind them on the glass.

Flux is called soft when the substances of which it is composed vitrify or run together with a slight degree of heat; and hard when it requires great heat to make it vitrify. Soft flux is the best for general purposes, though the hard flux is indispensable where the colour used is difficult to vitrify, as the soft would dissolve before the metal could incorporate with it. This will be pointed out as we proceed.

In making the different fluxes, it will be useless to repeat the method of preparing the different substances; suffice it to observe, they must all be previously prepared as directed in the last chapter.

No. 1.

Common flint glass	16 parts.
Pearlash	6 do.
Sea salt	1 do.
Borax	1 do.

A good general flux, that will not soil any colour; neither too hard nor too soft.

No. 2.

Flint glass	8 parts.
Red lead (minium)	2 do.
Borax	1 do.

This is a soft flux, very easily made, and can be used for any colour, except pinks, which the lead would injure.

The above are the two fluxes used in producing every example contained in this work. Either of them would be hard fluxes if the borax were omitted. When the several substances have been weighed, mix them well together in a paper (of course they are all previously reduced to a powder), and put them in a crucible, which place in a red heat till the substances have run together; then, while hot, in its fluid state, pour it out on a clean iron plate, with the edges a little turned up on each side. When the substance is cold it will have the appearance of glass. Then put it in an earthen mortar, and reduce it to powder; sift it through the lawn sieve, and grind it on the glass slab very finely, till there is no grittiness in it: when dry, it will be a very fine powder, fit for use. Put it in a clean phial, and mark it, hard or soft flux, according as it is made.

The above directions are applicable to all the fluxes that follow, which are here inserted, and can be used at pleasure; but the two first given will be found to answer almost every purpose.

No. 3.

Flint glass	12 parts.
Pearlash	4 do.
Borax	3 do.
Red lead	2 do.

This is a very soft flux.

No. 4.

Glass of lead	10 parts.
Salt	3 do.
Pearlash	2 do.
Borax	2 do.
Arsenic	1 do.

This is also a soft flux.

Glass of lead and arsenic can be procured of any chemist, and require no previous preparations; they will easily mix with the other substances.

The intelligent practitioner will perceive that the above substances might be varied in their quantities a number of times, according to the nature of the substance they are intended to be used with; some having a tendency to resist or harden the flux, others rendering it more fluid on the application of heat. The general directions, that the flux containing the greatest proportion of pearlash or borax will always be the softest, and the more flint glass is introduced the harder the flux will be, will enable him to compound a flux of any degree of fluidity or strength.

MIXTURE OF THE SUBSTANCES FORMING STAINS FOR GLASS.

The stains that are produced with the greatest facility are the yellow, of different tones of colour. The basis of all the yellow stains is silver; and in order to avoid a repetition of their names, when their application to glass comes under notice, they are numbered thus in the future chapters: instead of saying orange gold stain, it will be called Stain No. 1, and so on, with the whole of them.

No. 1. ORANGE STAIN.

Virgin silver	2 parts.
Crude antimony	1 do.

Put the above in a small crucible, which place in a strong heat till the silver and antimony are dissolved and run together: this will be easily seen by taking off the cover of the crucible. When quite dissolved, pour the contents of the crucible on an iron plate to cool, and afterwards pound the mass in a mortar as fine as possible. When quite reduced to powder, pass it through the lawn sieve; grind the sifted powder on the glass palette till all the grittiness has left it; then suffer the palette to dry, and the silver and antimony will be reduced to an impalpable powder. When scraped off the palette, it may be put in a phial, kept properly corked to keep out the dust and air, and it will be fit for use after any length of time.

When this stain is required to be applied to glass, to one part of the powder add six parts of common venetian red, mix them together in cold soft water, to about the consistence of thick cream. The venetian red should be free from all dirt, and other impurities. A proper quantity of this mixture should be made to stain the whole of the glass that is to be placed in one window, for if the mixture has to be prepared again, the tint may not be the same; indeed it is very difficult to make it match exactly, though the greatest care may be used in giving the exact quantity; and as the stain is quite as good after it is mixed with the venetian red as it is without it, it is better in all cases to prepare more than the glass may be supposed to require, rather than less.

This stain is floated on the glass with a large swan quill, camel-hair pencil, or flat camel-hair varnish brush, holding the glass in one hand

and floating the colour with the other: and while the colour is being floated on, move the hand gently that holds the glass, so that it may float evenly over the whole surface. It should then be placed on a table that is quite level, and not liable to be shaken, so that the glass may dry gradually, which it will do, if the room is dry, in the course of twelve or fourteen hours. The stain will be thus laid evenly and firmly over the surface of the glass, which is then in a fit state to burn, and with a moderate heat will produce an equal deep gold stain, which no time can remove, as, if properly burnt, it penetrates the whole mass.

Any lighter tint of orange may be produced by mixing ten, fifteen, or twenty parts of the red, to one part of the powder of silver and antimony.

No. 2. RED STAIN.

The deep red stain, seen in ancient glass, is a very difficult and expensive stain to produce; but a brilliant red, approaching very near it, may be produced by adding three drops of oil of vitriol to a pint basinfull of the deep gold stain, when it is mixed with the venetian red; as soon as the vitriol is mixed with the colour, float it on the glass and let it dry gradually, as before directed.

No. 3. LEMON YELLOW.

Silver precipitated	1 part.
Finely powdered pipe-clay	12 do.

These must be mixed together in a basin, and floated on in the way directed for the red and yellow. If the stain is required very faint, add four parts to the pipe-clay: if strong, decrease the quantity of pipe-clay. The same observation applies to the venetian red, as it is only the vehicle that holds and spreads the metal equally on the glass, but does not assist the colour at all, the metal alone forming the stain.

No. 4. GREEN.

A fine green stain may be produced by first staining the glass a light lemon yellow, and on the reverse side painting it with the mixture which will be found under the name of transparent blue. This will not be quite so clear a stain as the preceding colours, as it is but semi-transparent; but is a good green for trees, drapery, &c. where the pot metal cannot be introduced.

The above are the only stains that can be applied to glass after it is cast into tables. The beautiful purple, green, blue, and other coloured glass, is tinged in large quantities, in the melting pot, and is by glass workers called pot metal. The way in which they can be applied as colour for pictures on glass, will be shewn when the examples contained in this work, come under notice.

THE PROPER MIXTURE OF VITRIFIED COLOURS FOR PAINTING ON GLASS.

No. 5. PURPLE OR CRIMSON OF GOLD.

Precipitate of gold and tin	1 part.
Flux, No. 1	6 do.

This is a most glorious colour, but must be used carefully on account of the expense and trouble of preparation. It will appear a fine crimson before it is burnt, but will be very brilliant afterwards.

No. 6. ROSE COLOUR.

Drop a few drops of the gold, dissolved in aqua regia, into a basin of water, in which six grains of alum has been dissolved. Then drop caustic ammonia, drop by drop, and the gold will be precipitated to the bottom of the basin in a dark grey powder; drain the liquid from it, and wash it with clear water three or four times. While the precipitate is wet, put about six times the quantity of flux No. 1., and grind them together on the glass slab; while grinding, add (a leaf at a time) six leaves of leaf-silver; the mixture will now be a very dark lead colour: when it is well ground, let it dry, and put it in a phial for use. It will still be lead colour when applied to the glass, but when burnt will be a very fine carnation or rose colour.

No. 7. BLUE.

The finest blue may be procured from

Pure ultra marine	1 part.
Flux, No. 1	6 do.

No. 8. A VERY GOOD CHEAP BLUE.

Good smalt	10 parts.
Cobalt	1 do.
Salt	2 do.
Borax	1 do.
Flux, No. 1.	2 do.

The addition of the salt and borax to the above, is to assist in the vitrification, as the smalt and cobalt are both hard substances.

No. 9. DARK BLUE.

Blue glass (pot metal)	1 part.
Cobalt	1 do.
Smalt	1 do.
Flux, No. 1.	1 do.

This mixture requires to be vitrified in a strong heat. The blue glass can be purchased at any glass warehouse: it (as has been before observed) is called pot metal, from its being tinged in large quantities, while in a state of fusion. Blue sugar basins, and other vessels, are formed with this glass, and therefore if more easily procured for experiments, may be applied in making this colour: the glass must be powdered, and ground finely, before it is put in the crucible with the other materials. The glass painter will observe that this recipe requires a smaller quantity of flux than most of the others: the blue glass being very soft, answers the same purpose.

No. 10. DARK GREY, OR STRONG SHADING COLOUR.

Zaffer	1 part.
Flux, No. 1.	4 do.

This is a very useful colour for shading blue or green draperies, &c. as it is transparent if thin, but may be used quite opaque. If the flux is not soft enough to vitrify the zaffer, add one part borax.

No. 11. GREEN.

Green pot metal	2 parts.
Green oxide of copper	2 do.
Red lead	1 do.
Borax	1 do.
Flux, No. 2	2 do.

The above must be run together in a crucible, and when fluid poured out on the iron plate, and afterwards pounded, sifted, and ground, and put in a clean phial for use.

No. 12. BRIGHT GREEN.

Silver in powder	1 part.
Burnt pipe-clay	16 do.

Stain one side of the glass with the lemon yellow. The stain must be very weak, or it will overpower the blue, particularly as it has got to pass twice through the fire, which will strengthen the stain very much. On the reverse side to the stain paint with dark blue, No. 9., and it will produce a most brilliant green.

No. 13. A BRILLIANT SEMI-TRANSPARENT YELLOW.

Red lead	8 parts.
Antimony	1 do.
White oxide of tin	1 do.
Flux, No. 2.	4 do.

Put the above on a tile in the muffle, and calcine till they mix together, without being quite fluid; then pound them in an earthen mortar, grind, sift, &c. for use. The above is a fine yellow, and will diaper on the yellow stain, and is very useful in gold lace, &c.

No. 14. DARK RED.

White lead	1½ part.
Sulphate of iron	1½ do.
Flux, No. 2.	1 do.

The above is a good red for flesh tints, shadowing on yellow, &c. but the same effect may be produced easier with

No. 15.

French red chalk	1 part.
Flux, No. 1.	1 do.

Of course the easiest is the best.

No. 16. DARK RED BROWN.

Crocus Martis (common crocus)	1 part.
Flux, No. 2.	1 do.

This colour is used for drawing the outline of every subject, and is usually called outline or pencil colour; it is also used for shadowing on warm grounds. The crocus, as has been before observed, is a preparation of iron: if it is well ground on the palette, with the flux, before it is used, it requires no other preparation. The touches made with this mixture retain the same colour after being burnt.

No. 17. OPAQUE WHITE.

Calcined bone	1 part.
Flux, No. 1.	2 do.

This is a semi-transparent white, very useful for draperies, and as it has a warm tinge, it is the proper white for linen, and it has not at all the appearance of ground glass: it is likewise a fine white for heraldry. The bone is prepared by being burnt in a crucible till it is quite white. Pork bones are most fit for the purpose.

No. 18. WHITE, IN IMITATION OF GROUND GLASS.

White oxide of tin	1 part.
Flux, No. 1.	3 do.

When well ground and mixed together, it will, if properly applied to the glass, have all the effect of ground glass. The process is very easy, and as the glass can be diapered in any figures, it is far superior to the common ground glass, and will retain its colour quite as long. The method of applying this mixture to glass will be found in the next chapter.

No. 19. BLACK.

Umber (burnt black)	2 parts.
Blue pot metal	5 do.
Borax	2 do.
Red lead	6 do.

Put the above, mixed together on a tile, in the muffle, till they have run together, but not quite fluid; they will then form a mass, which must be well pounded and sifted, and mixed with one part flux, No. 2. it is then fit for use. This is a semi-transparent black, and is the ground for sable in heraldry.

No. 20. OPAQUE BLACK, FOR SHADING THE ABOVE.

Smalt	2 parts.
Manganese	1 do.
Flux, No. 2.	2 do.

No. 21. ANOTHER OPAQUE BLACK.

Verdigris	1 part.
Flux, No. 2.	2 do.

Both the preceding mixtures must be calcined to a mass, on a tile, in the muffle, and afterwards pounded and ground finely for use.

No. 22. CITRON YELLOW.

Silver, reduced to powder	1 part.
Yellow lake	2 do.

This is a beautiful semi-transparent colour. The student will see, from the ingredients with which it is formed, that it is nearly as strong as any of the yellow stains. It is a beautiful colour to lie over a blue, to form a rich green: it is nearly the same colour when burnt, as when it is first applied to the glass.

No. 23. SHADING YELLOW, OR LIGHT BROWN.

Burnt umber	1 part.
Flux, No. 2.	2 do.
Crome of glass lead	2 do.

This mixture may be used as a shading colour for any of the yellow stains. The whole of the ingredients must be well pounded and ground together.

With the colours prepared according to the preceding directions, all the subjects contained in this work were executed. The student will find directions for the preparation of various tints, from other materials, from the recipes of the old masters, from which many valuable hints may be gleaned, when the painter is so far advanced in the art, as to be able to mix and apply any of the colours given in this chapter.

CHAPTER VI.

DRAWING AND PAINTING ROSETTES, HERALDRY, FIGURES, &c. ON GLASS.

In the preceding chapters on ornamental painting, it has been stated that there are various patterns that any intelligent painter may, by using a little care, execute with effect, without having any previous instruction in drawing. The same observation will apply in painting on glass, as the ground on which the subject is to be painted is transparent; consequently any patterns placed behind the glass will be seen very distinctly, and the outline and light and shade may be traced with ease and correctness.

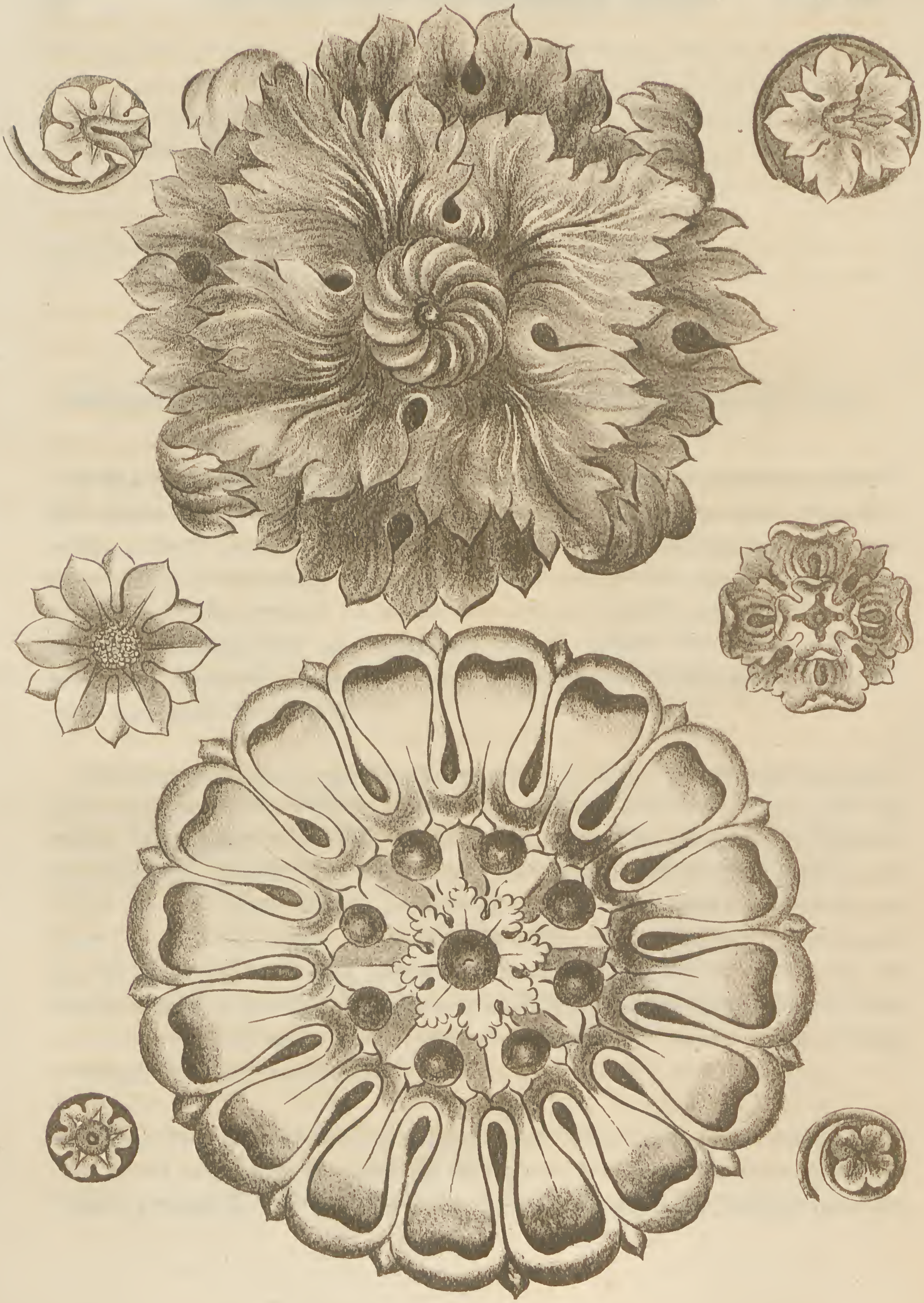
The first process in painting on glass is to draw or procure any pattern required: the outline should be dark, so that every line may be seen. The pattern should be laid flat upon the glass, and wafered down at the corners, so that it may not shift. When the wafers are quite dry, the glass should be placed on the easel, and a string drawn over it, and tied to the easel at both ends: of course the string must be so placed that it may not interfere with the pattern. The use of the string is to prevent the glass from falling off the easel, should it be touched by accident, and it likewise keeps it steady while being worked upon by the brush.

The glass palette that has been used for grinding the colours will be found necessary in painting the glass, as all the colours, however finely prepared, will require to be ground up with the vehicle used for

ROSETTES.

For stained glaſs or ornamental painting.

Plate XLVII.



spreading them on the glass. The brushes used for this kind of painting are long-haired sable pencils, in long handles, so that a large sweep may be taken when required. The brushes should be tied to the handles, so that there may be no possibility of their slipping off; as it is almost impossible to repair any accident on glass, and a brush full of colour falling on the work will oblige the painter to draw the whole again. A rest-stick will also be required to support the arm while painting.

The vehicle used in painting the following subjects on glass is capivi balsam, thinned with a little amber oil or turpentine. The amber oil will be found to answer the purpose best, as it does not dry so quick as the turpentine, and will allow the colours to run more smooth: in some cases gum-water is used. It is of little consequence what vehicle is used to spread the colour on the glass, provided it fixes it sufficiently on the ground to prevent the colours running one among the other; as the vehicle, be it what it may, all evaporates in the burning, and the colours become vitrified to the glass by means of the flux that is ground up with them.

By referring to Plate XLVII. two large and six small rosettes will be seen: these are very easy to execute, and at the same time very useful and pleasing ornaments. They are the same colour that the outline and shading colour, No. 16., will appear when laid on, if prepared properly. The larger rosettes are about the size usually introduced as ornaments, with plain stained glass borders. Either of them can be drawn on the glass, by fastening the pattern to the back of it, and going over the outline with a little of No. 16., ground up in thin gum water. This outline need not be very dark, nor will every part of it be equally dark.

If a number of rosettes of the same pattern are required, the pattern need not be shifted, but the pieces of glass may be laid over the first, and the faint outline drawn on them all; this will quickly dry, and will make the surface of the glass rough, so that it will easily take the outline in oil that is next applied to it. This must not be laid on with the same brush that the outline in gum-water was laid on with, but with a long-haired sable pencil that will draw a fine line, and yet hold a quantity of colour.

In drawing the outline with the colour ground in oil, it will be better, if possible, to get it sufficiently opaque at once; but if, on holding it up to the light, the lines are found thin in parts, they may be retouched and amended, till the whole is of the same strength. In drawing the upper, or, indeed, any round figure, it will, in all cases, be better to commence at the centre, drawing the lines only, without thinking of shading till they are dry.

There will be little necessity for giving the whole process for shading the foliage of the upper rosette, as the pattern will show how it is executed. It may be proper to observe that the shade is laid on with lines or hatches, and not with a broad wash of colour. The second shade should not be applied till the first is quite dry. The very dark opaque touches, at the folds of the leaves, are done last, when the colour before applied is dry. When the pencil colour is quite hard, the yellow stain, No. 2., may be floated evenly over the whole piece at the back, and the glass is in a fit state to burn.

Plate XLVII*. is another easy subject, that can be readily imitated without a knowledge of drawing; and though it has a variety of colours, may be finished at two burnings. Place the pattern behind the glass, as before directed, and draw the outline of the cross, and the scroll around it, with common indian ink upon the glass; then placing it on the easel, go over the indian ink outline with the pencil colour, No. 16., taking care that the lines, in every part, are drawn clear and firm.

The painter will observe in the pattern that the lines on the dark side are much thicker than those on the light: this effect must be given in all subjects. The learner may, perhaps, inquire why the pencil colour could not be used at once, without tracing the subject on the glass, with very thin indian ink. The use of this is, that the indian ink forms a rough line on the surface of the glass, which dries

STAINED GLASS.

Plate XLVII.*

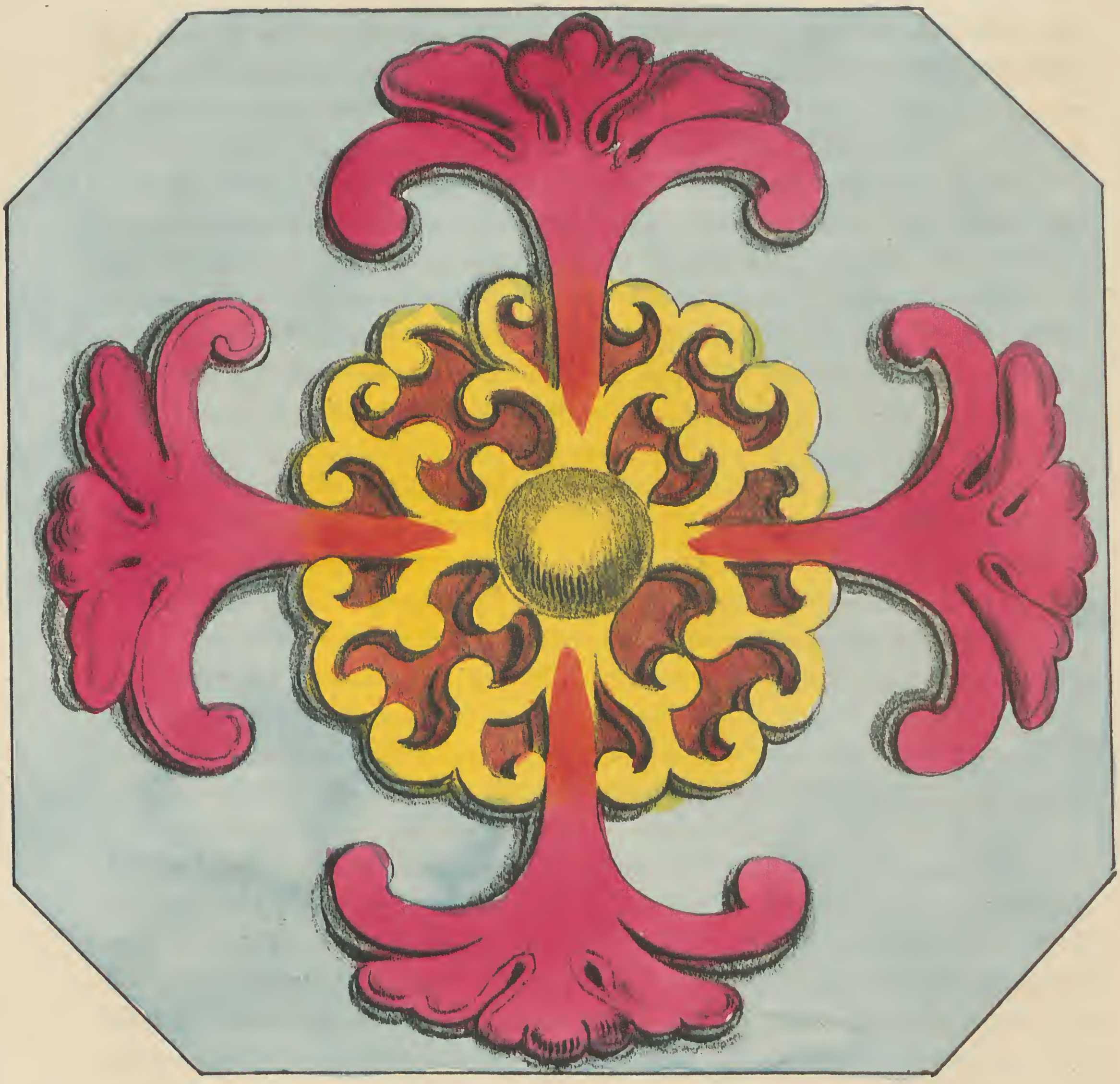
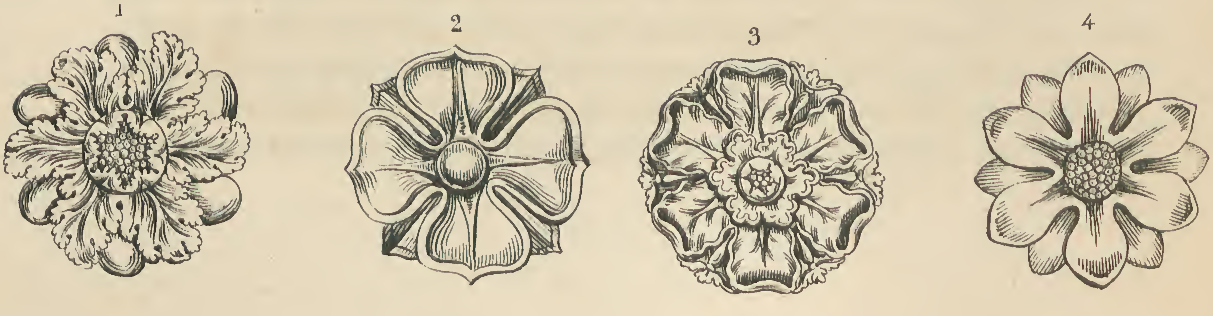


Plate LII*



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2

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4

as soon as it is formed; this line catches the point of the brush that contains the pencil colour, and makes it flow from it with more ease than it would upon the polished surface of the glass, and renders the line firm at once, without requiring amendment or alteration, which is always to be avoided if possible, as it is scarcely possible to go over the same outline twice before burning, without making the line rough and lumpy. It is, therefore, of great consequence to have the colour well ground, and the sweep or line to be formed at once, with sufficient strength. When the outline of the cross is formed, shade it with the same colour. The ball in the centre must be rounded up, and, in short, the whole finished in this colour, and suffered to dry before any stain is applied.

The cross is intended to be red, therefore stain No. 2., must be floated over the back of it, and when dry stain No. 3., lemon yellow, over the scroll around it, and on the ball in the centre. The glass is now in a fit state to burn the first time. The method of burning will be stated in a future chapter.

When the glass has been burnt, scrape or brush off the colours, taking care to take them off separately, that the red stain is not mixed with the lemon yellow, as only part of the metal contained in each has penetrated the glass, and the colour that remains will be found to contain a sufficient quantity of colour to use again; and though this may be of no great importance while painting for practice, yet it is of great importance in point of expense, if a large quantity of glass is required; and if the colours are mixed they will of course spoil each other.

When the glass has been burnt once, it will be seen if the red stain is sufficiently deep, and likewise if it is quite transparent and free from spots. If the colour is good, and but few faults appear, there will be no necessity for applying any more stain, as the second burning will not only remove the spots, but likewise considerably heighten the colour. Before any stain is laid on the glass, observe whether the outline and shading colour is properly vitrified to the glass; if it is thin or broken in parts, it may now be amended, and when dry, the red stain again floated over the cross. The lemon yellow will not require to be stained again, as, if it is not considered dark enough the first burning, the second will bring it up to the proper colour.

Plate XLVIII. is not coloured, in order to shew the effect that should be obtained with the shading colour, without the application of stain.

The painter who has attentively studied and practised the ornaments given in the former part of this work, will find but little difficulty in producing this rich border, particularly if he puts it at the back of the glass, and traces the outline first with thin indian ink, as directed in the preceding subject. This pattern looks extremely well if the leaves are lemon yellow, and the acorns red, on a blue semi-transparent ground: it will require to be burnt twice. The middle tint, or shade, on the leaves, is applied with the pencil colour, after the first burning. The red is strengthened with a second coat of stain in the second burning.

The student, in practising the preceding subjects, must not expect to attain perfection at once, nor be discouraged with two or three failures. But it will be sufficient for the beginner if he is satisfied that the method he is proceeding upon is correct, and that he has the power of producing the colours and stains, and only requires practice to arrive at perfection. For this purpose he may draw a variety of simple figures on glass, but it will be better to let them take the form of small rosettes, or angle pieces, as they must be bad indeed if he cannot bring the pieces into use at a future time.

Plate XLIX. is a most brilliant rosette, admirably adapted for a Gothic window; yet not of so marked a character as to render it unfit for any other. The pattern of this will be easily drawn, but it will require great nicety in cutting the outlines sharply, as they are all thin and delicate. This, like the other subjects, should be traced from the pattern with thin indian ink, and the outline produced with the pencil

STAINED GLASS.

Pl. LVII.

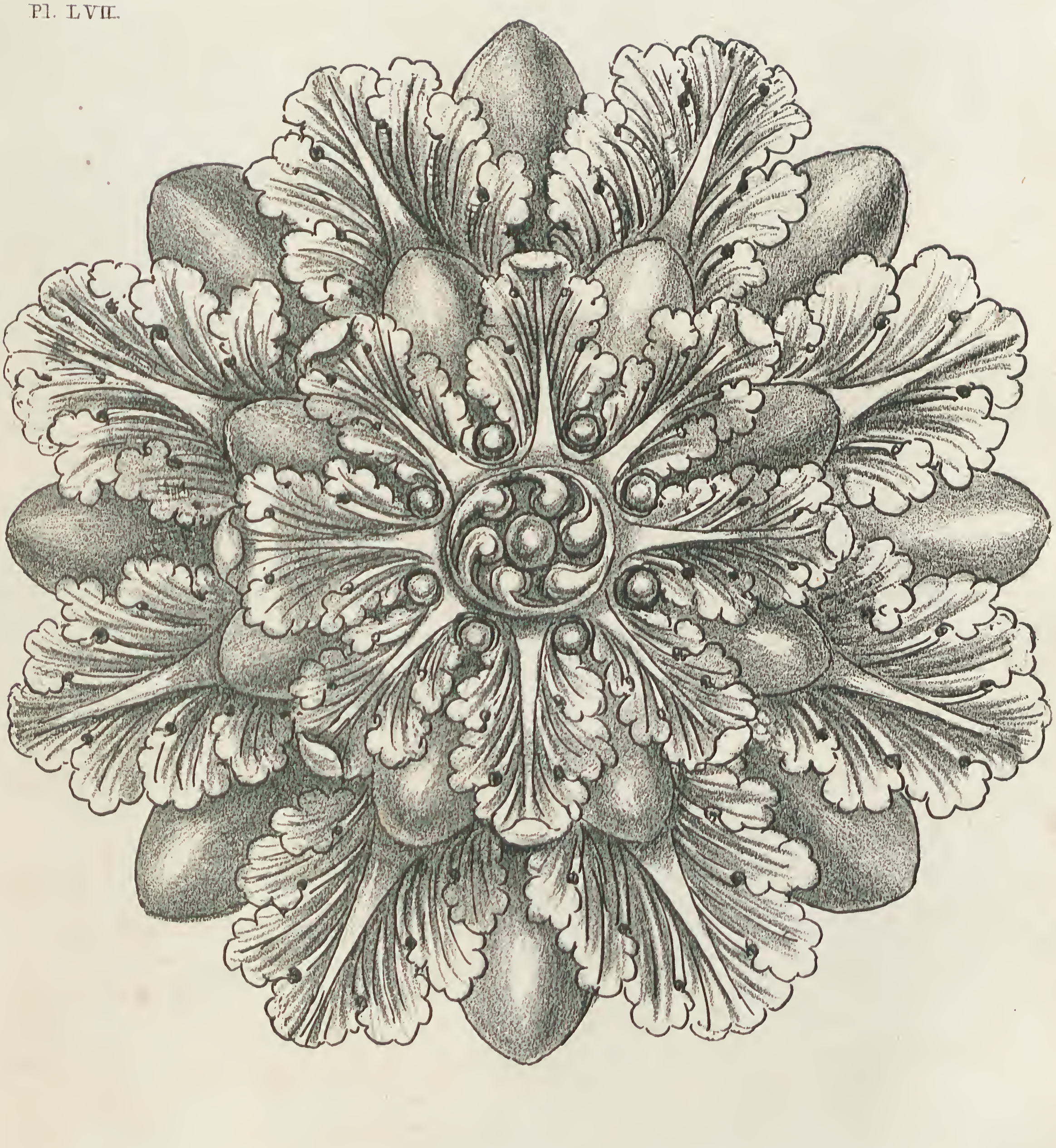
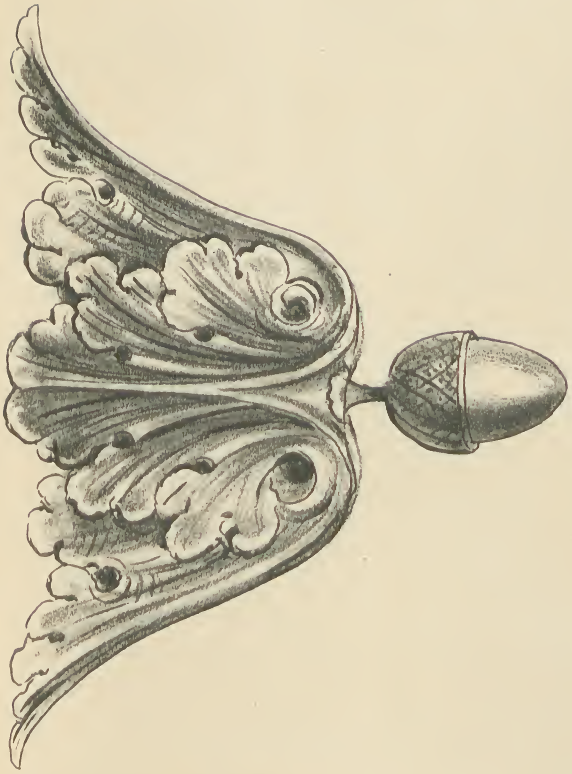
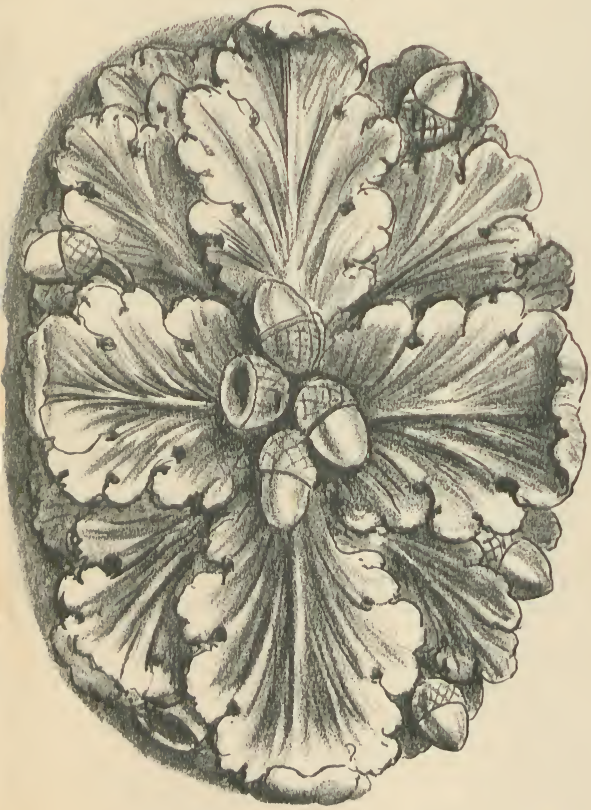


Plate XLVIII.

STAINED GLASS.





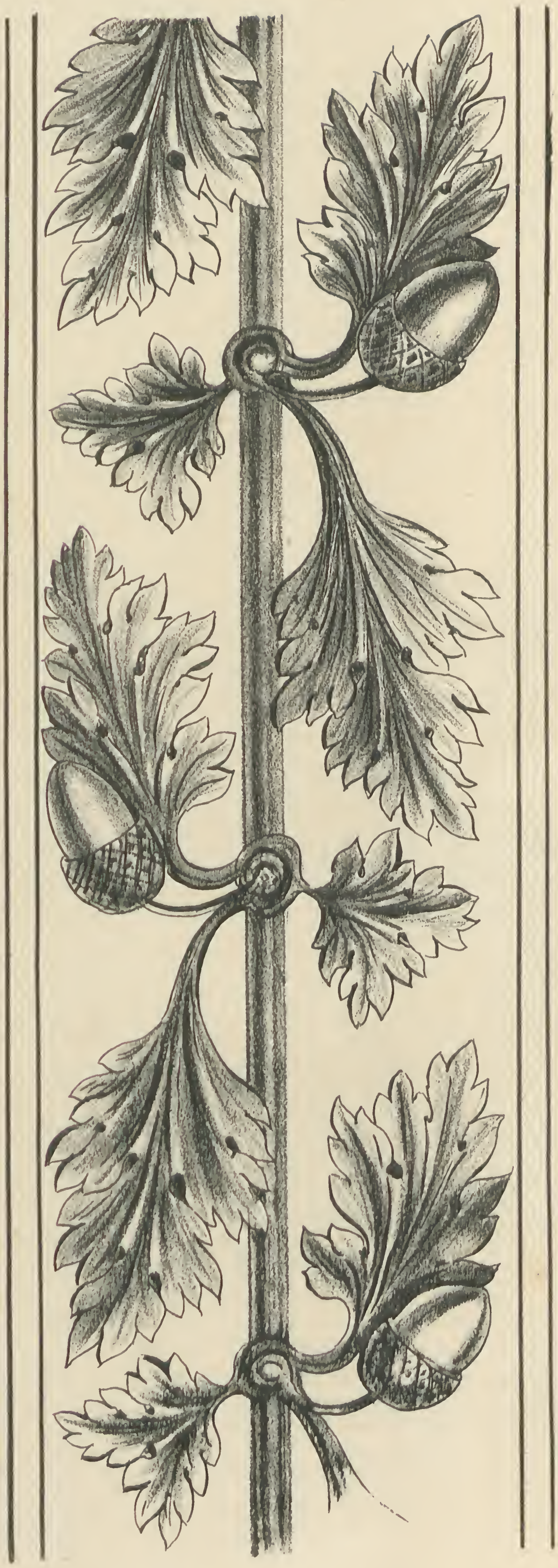


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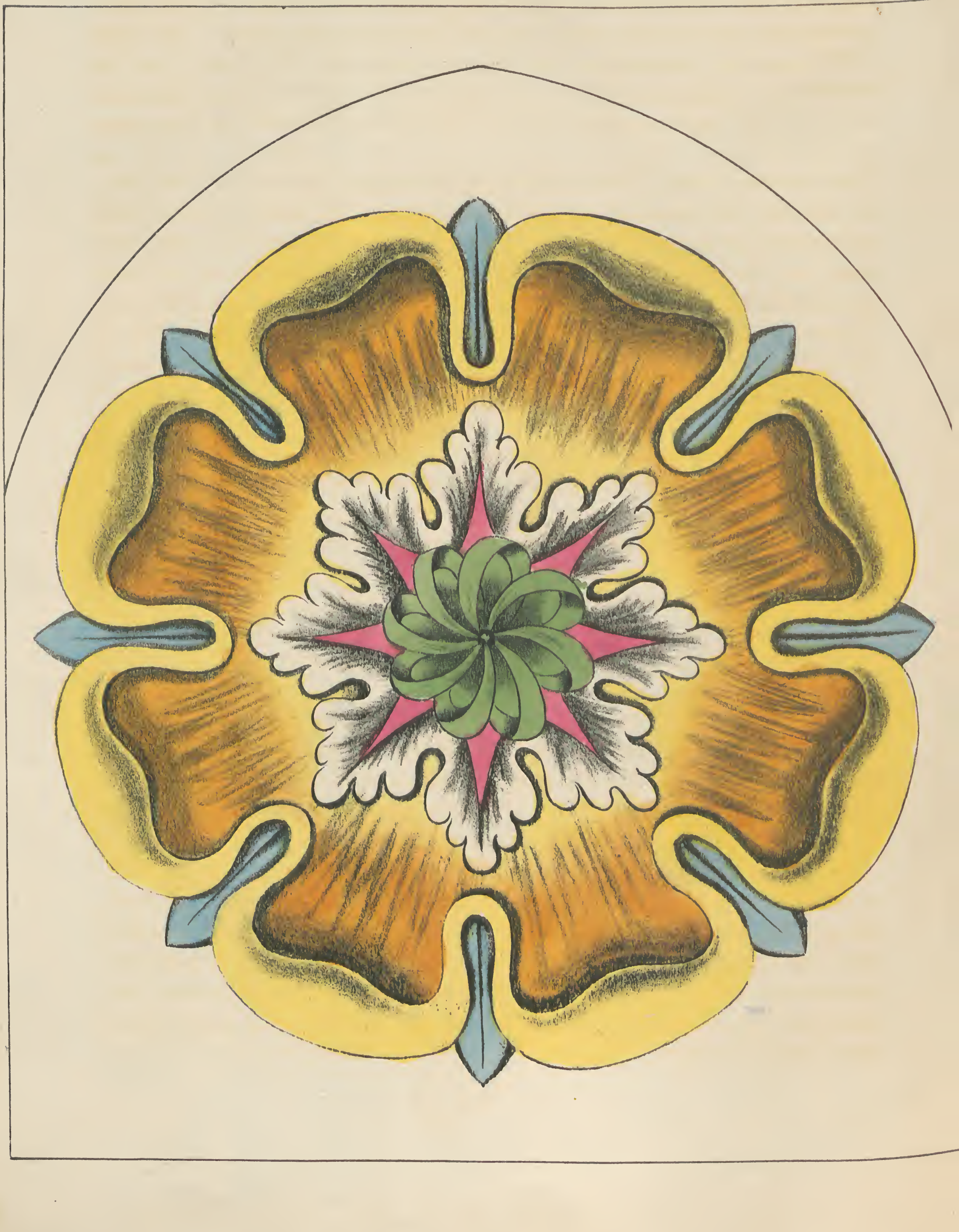
Plate XLIX.



colour drawn quite solid, and suffered to get dry, so that any stain that is required may not mix with it, when applied to the glass. The light yellow, on the outside, is the citron yellow, No. 22. This may be applied on the same side of the glass as the pencil colour, when the latter is dry, as the yellow is not floated, but painted on the glass nearly the same colour it appears when burnt. The blue, No. 8., is likewise painted on in the same way in the front of the glass: it must be laid on very smooth, and nearly opaque. The rays on the large mass of orange stain, are formed with the shading colour, No. 23. The white may likewise be laid on upon the side of the glass upon which the outline is painted: the opaque white, No. 17., is the best for this purpose. A very light stain of lemon yellow should likewise be floated over the knot in the centre, which is afterwards to appear green.

When the term light stain is used, it is not intended that but a little of the stain must be floated thinly on the glass, as, in all cases, the body of the stain must be thick and opaque. By a light stain is meant that which contains the least quantity of metal, and consequently produces the least colour.

The whole of the colour on this side of the glass must be quite dry and hard before the stains are floated on the reverse side.

The orange stain, No. 1., is floated over the whole mass, from the edge of the lemon yellow, to the edge of the white; and the red stain, No. 2., floated over the points of the star, between the green and the white. When these are quite dry, the glass is ready for the first burning.

After it is burnt, the orange stain must be brushed off the back, and likewise the red from the star. The lemon yellow stain must also be very carefully rubbed off the knot in the centre, and the glass will now appear with all its imperfections; and it will be the business of the painter to hide any that may appear, by shading upon the glass before the second burning.

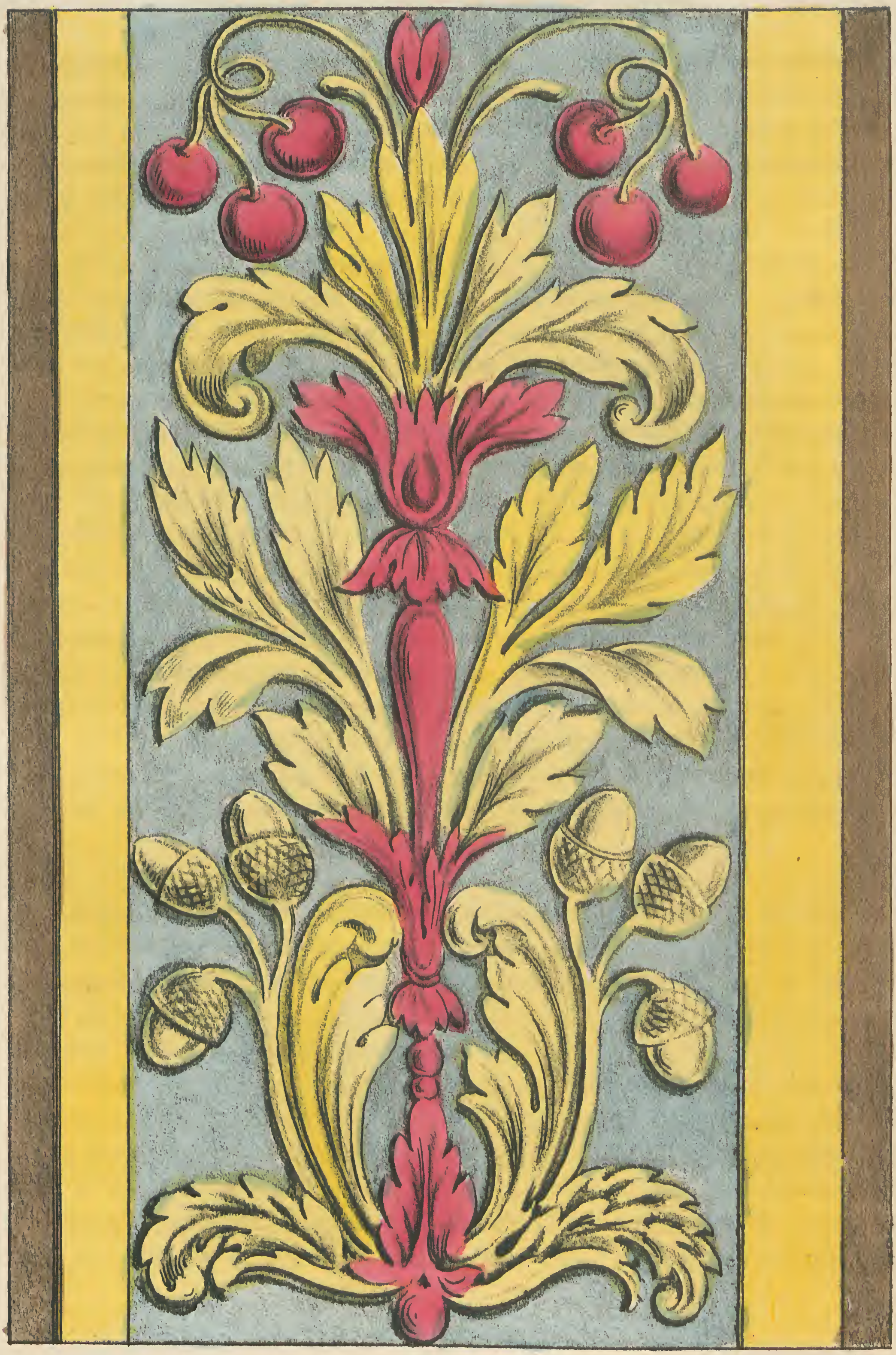
The outline must be strengthened or amended, in any part that requires it, with the pencil colour, No. 16. The shade upon the citron yellow is formed with No. 22.; this, it will be observed in the pattern, is not taken quite close to the edge, but a reflected light is seen between this shade and the dark shade on the orange stain.

In drawing the rays on the orange stain with the pencil colour, care must be used to let the lines hide any spot or flaw that may appear on the stain. The same method must be used in shading on the white with the grey shading colour, No. 10. As this colour can be used quite opaque, it will answer very well to strengthen the outline, round the red points of the star, and likewise to give the dark touches on the green knot. If the blue has failed in any part (which it is liable to do from the great heat it requires before it will vitrify), it may now be amended, by applying the same colour, No. 8., to the broken parts. The shading on every part must now be got up as high as it is required, as it will add very materially to the expense to have to burn the glass the third time, which must, of course, be the case if every part is not properly attended to before the second burning. The only part that will require to be stained the second time is the red. A thin coat of blue, No. 8., must likewise be laid over the knot. The whole will then be ready for the fire, and when burnt will produce the rosette, in colours far more brilliant than it is possible to produce on paper.

It may be necessary, in this stage of the instructions on glass staining, to point out the reasons why certain colours are opposed to each other. This has been done before, when treating on colours in distemper; but, independent of the reasons there given, the student will observe that, in modern glass painting, the dark ruby stain, which gives such brilliancy and richness to the ancient window, is not easily obtained from the costliness of the material, and (it must not be denied) from our ignorance in producing it. On this account the dark red, produced from copper, silver, and antimony, No. 2., is substituted for it: but it always partakes too much of the orange to be a decided red, if it comes in contact with warm colours; wherever it is used,

Plate LI.*

STAINED GLASS.



therefore, it should be surrounded with bright lights or cold colours, as, in the present instance, where the white separates it from the orange and the green in the centre, it gives the red value by its coolness. These observations will apply to any of the future specimens.

Plate L. is a beautiful Grecian rosette, which is left uncoloured for the purpose of exercising the taste and ingenuity of the painter in the opposition of colours. This is a very elegant ornament if worked up in the pencil colour, and stained entirely with the red stain, No. 2., particularly if introduced in the angles of a large window, filled.

Plate LI. is a light elegant pattern for a border, which can be easily painted by the student who cannot draw. It must be traced as before directed, and the outline drawn very solid with the pencil colour. As this must be burnt twice, it will be advisable to defer the shading on the leaves or fruit till after the first burning. The leaves are lemon yellow stain, No. 3. The stem, running up the centre of the pattern, is red stain, No. 2., with which colour the cherries may be stained, if working for practice; but if the glass is to be placed in any situation where price is not an object, the fruit should be painted with the beautiful enamel colour, called crimson of gold, No. 5.: the ground is the light blue, No. 8., painted evenly on the glass. It is now ready for burning the first time.

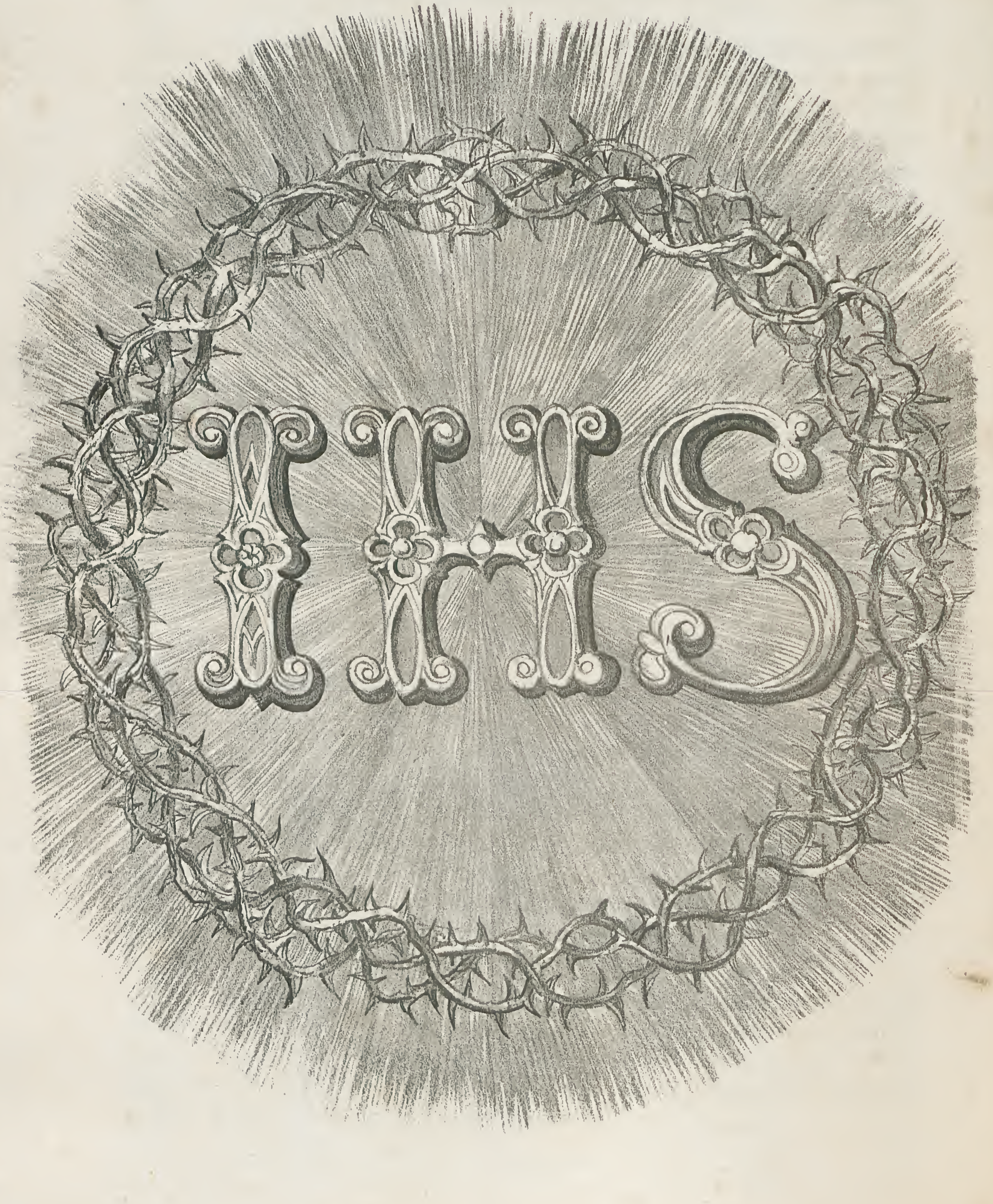
When the staining colour is taken off, the light yellow may be shaded, according to pattern, with No. 16., taking care to keep the colour transparent. The dark touches are drawn upon this with the shading colour, No. 16., and the whole finished up to the strength it is to appear when burnt the second time. The lemon yellow will be quite strong enough, but the red stain will, perhaps, require to be applied again, to bring it to its proper colour. If any part of the outline has failed, it can now be retouched; and the work will be finished when the stains and colours are vitrified by the second burning.

Plate LII. contains four small rosettes, which are light, pleasing patterns, that can be easily executed.

Fig. 1. has only two colours, and though it looks very showy can be executed rapidly, and at a little expense; it is, therefore, a good rosette for common work, and can be finished at once burning. The light yellow is the stain, No. 3. The dark orange is the red stain, No. 2. The whole is shaded with the pencil colour, No. 16., but it must be well ground, as any thick, lumpy particles will shew stronger in these small rosettes than they do in the large ones. If a little variety is required in the colour, the seeds, in the centre, may painted with blue, No. 7.

The second rosette will require more attention both in the drawing and shading; it is a very useful pattern, as it will answer for either a Gothic or Grecian window. The outline must be drawn with the pencil colour, No. 16. The edges of the large leaves are stained with lemon yellow, No. 3.; the insides are orange stain, No. 1. This rosette will require to be burnt twice; thus the green foliage round the centre-piece may be stained first with a light lemon yellow. The centre is dark red, with the exception of the bead in the middle; this may be light yellow, No. 3. The outline must be drawn firm, and the effect of light and shade given before the first burning; but the shading upon the broad leaves, or the green leaves round the centre, need not be given till the stains are fixed. When the rosette is properly cleaned, shade the broad leaves with the brown tint, No. 23., working it upon the glass with the same effect as if on paper, as it will appear nearly the same colour when burnt. The light blue colour must now be painted on thickly, on the back of the part that is green in the pattern. The red in the centre is likewise very strongly shaded with the dark shading colour, No. 16. This rosette will require a strong second fire to vitrify the blue upon the yellow, and likewise to bring out the brilliancy of the red.

The oak leaf rosette (Fig. 3.) can be finished with two colours, the lemon yellow and the dark orange. The principal beauty of this rosette consists in bringing up the leaves with the dark shade, No. 16. This can be done on one side of the glass, and the stains laid upon the other, so that the whole can be finished with one burning.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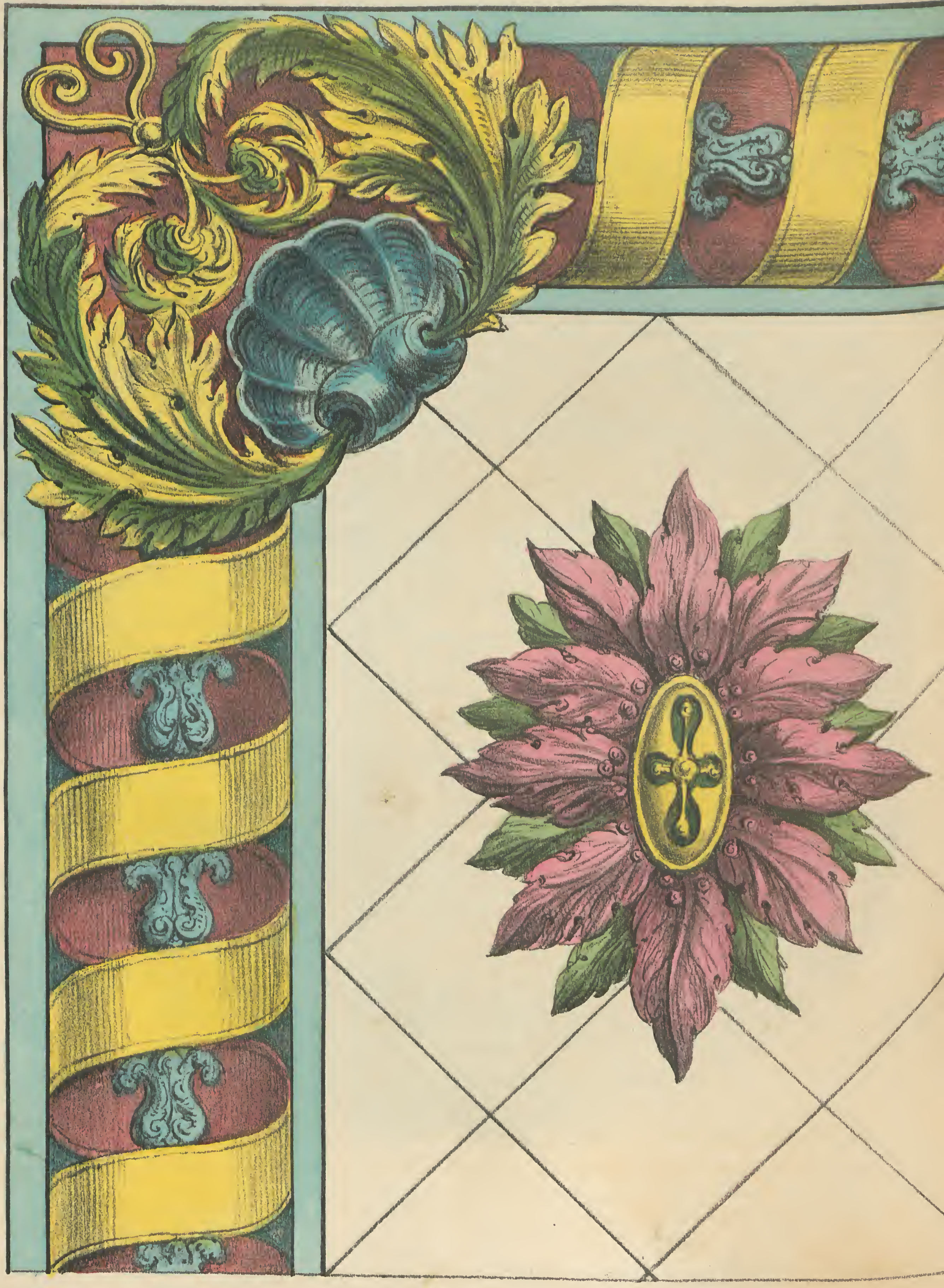


STAINED GLASS

Fig. 4. is a very showy rosette, which requires but little trouble in the execution, and is very effective when inserted in a window. It is drawn with the outline colour, No. 16., and shaded with the same. The large folding leaves are stained with light yellow, No. 3., at the back of the leaf which folds over, and the inside dark orange, with the exception of the vein that runs up the centre, which is light yellow. The star, in the centre, may be either green or blue. The spot, in the centre, a light yellow. The whole is shaded with the pencil colour, and may, if required, be executed with once burning.

Plate LIII. will be found very useful as an ornament in the head of an east window in a church or chapel. The ground for the whole is lemon yellow stain, No. 3. The glass should be stained this colour before any thing is drawn upon it. The crown of thorns, and the letters, should then be traced out with the pencil colour, No. 16., giving the light and shade at once. The strong light on the thorns should be left the ground colour. The middle tint formed with red stain, No. 2. The shading colour will give the darkest shades.

When this is all properly drawn, rays running from the centre of the piece should be drawn in every direction with the orange stain, No. 1.: this will produce a beautiful effect, and make the light yellow on the letters, and on the thorns, have the appearance of burnished gold. The form of the letters is merely a matter of taste; they would look quite as well if they were plain Roman letters. If the stains and the drawing are properly laid upon the glass, this may be executed with one burning; but in most cases where red is introduced, it requires to be burnt a second time, to bring out the true depth of the colour. Depth may be given to the rays by touching upon them, on the outside, with the warm shading colour, No. 23.: this colour may likewise be used to give depth to the letters. The darkest shade must be given with the pencil colour, No. 16., used quite opaque.

Plate LIV. is an elegant border and angle piece; and as this is nearly the last of the patterns that can be executed without a knowledge of drawing, the directions for executing this from the commence-taking care to make the dark touches on the leaves bold and opaque.

The leaves that are to appear green must now have a coat of light blue, No. 8., laid over them very evenly; consequently any work required with the shading colour on the green leaves, must be done on the other side of the glass. A partial coating of No. 8. must likewise be laid on the large leaves, in the angle piece, taking care to leave the yellow stain for the bright lights.

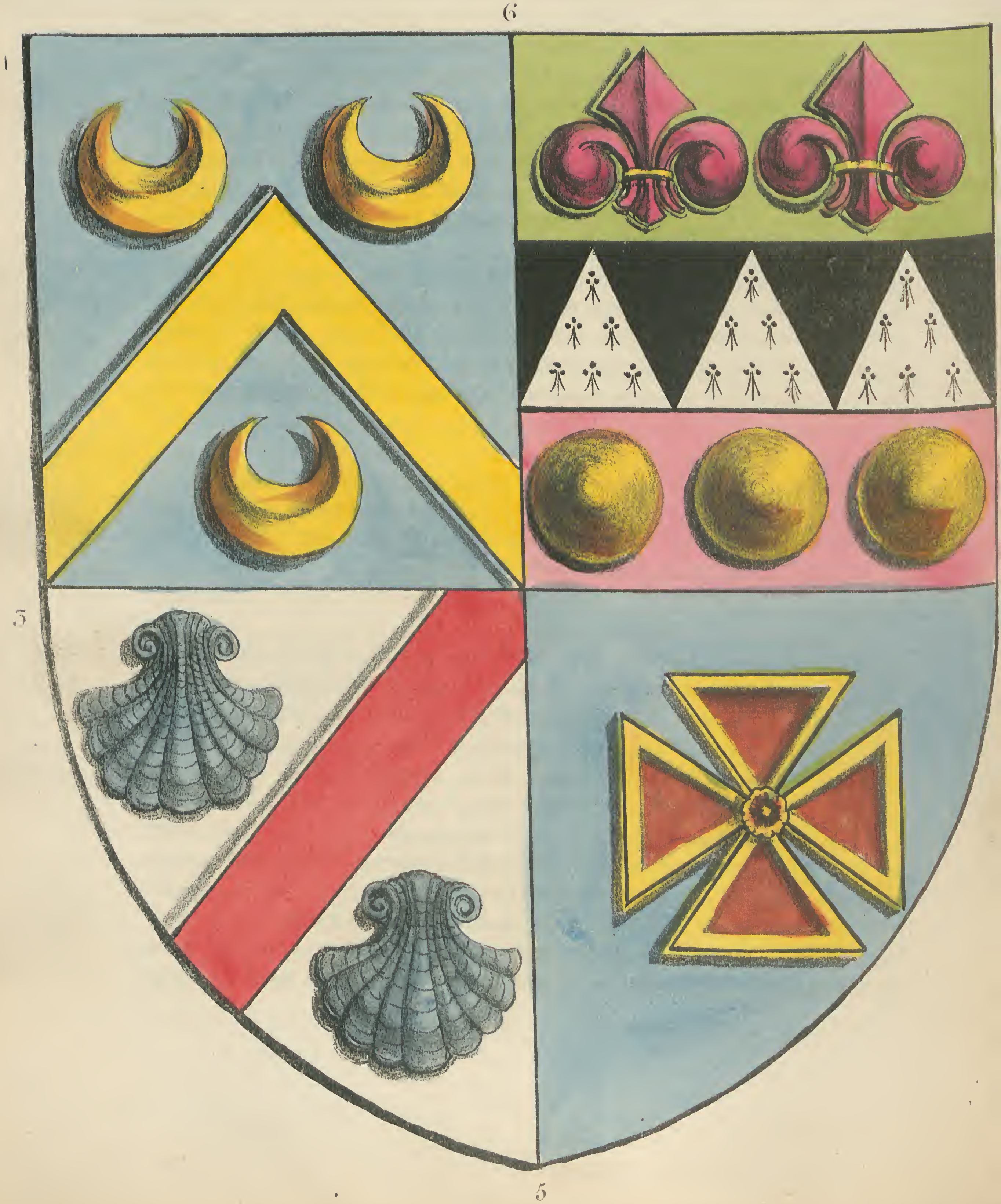
If the red stain is not sufficiently high coloured after the first burning, float the colour over it again on the opposite side to that which is shaded. Every part of the glass must now be examined, so that nothing is left to do after the second burning, as the third burning is not only a very troublesome but hazardous process, and to be avoided if possible.

The part left quite white in the pattern is intended to be an imitation of ground glass. The lines across it are the common colour of the glass, and may be left in any pattern. This is called diapering, and has a beautiful effect on white or coloured glass, if properly executed.

After every other part of the glass is completely finished, and quite dry, take a large swan-quill camel-hair brush, and dip the end of it in some amber oil, put in a saucer, very little at a time, so that the brush may not get up so much of the oil as to make it run on the glass. This brush must be held upright in the hand, so that the end of the hairs comes on the face of glass; keeping it in that direction, go over every part that you wish to appear like ground glass; not painting in strokes, but dabbing every where till the glass is evenly covered with the oil, not one part thicker than another, taking great care that there is no part where the oil looks fluid. Then take as much of the ground glass preparation, No. 18., as you think will cover the glass, and put it in the lawn sieve, sifting the colour on the glass very gently and

STAINED GLASS.

HERALDRY.



STAINED GLASS.

Antique Rosettes.

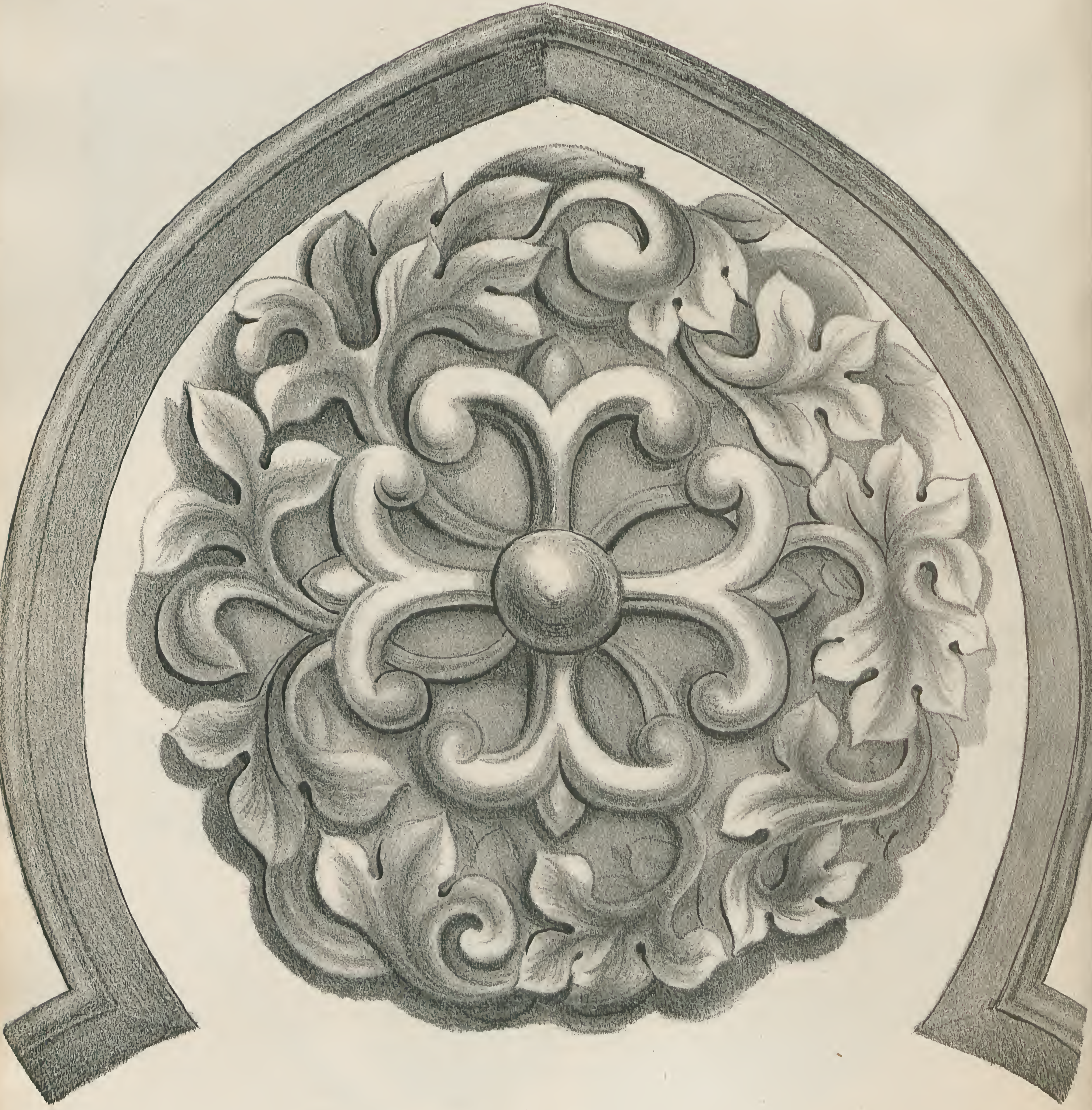


Plate LVI.

evenly all over, till the whole is covered, holding the sieve two or three feet from the glass, as the higher the sieve is held the more evenly the colour falls. The glass must be left at least six hours to dry; and then the superfluous colour, that was sifted on the glass, may be brushed off very lightly with the badger-hair softener.

The glass will now appear as if ground, and any pattern you please may be drawn with ink, and laid under the glass; it must, of course, be strong enough to shew through the colour. A flat rule must be laid on the glass, and the colour scraped away with a blunt piece of wood, cut to the width of the line required. If flowers or sprigs are introduced, the preparation must be scraped away in the same manner. Great care is required that the ends of the fingers, or the cuff of the coat, do not touch the glass, as the colour will easily come off; and if any mending is attempted, it will be sure to appear in patches. This can be avoided by having a board to lean on, with two small pieces of wood at each end, to keep it from the glass. A drawing of this board will be seen in Plate LIX*. Fig. 3. When the whole is drawn, the glass is fit for the second burning. When burnt, the white colour will be found to be fluxed to the glass so strongly that no common means would remove it.

The above directions for diapering will answer for every colour; its use in many cases where pot metal is introduced, will be evident in some of the following subjects:—

Plate LV. contains some of the most common figures in heraldry; any of them, taken separately, will be good subjects for practice. Their use in heraldry, and the method of producing them, will be given in another part of this chapter.

Plate LVI. contains a very elegant antique rosette, from a window in Merton College, Oxford. It is left plain that the painter may use his own judgment in the application of colour; as a genuine Gothic pattern, drawn the size of the original, it is valuable. The painter who has paid attention to the instruction on drawing ornaments, in a former part of this work, will find but little difficulty in producing it; and it may be found useful as a Gothic ornament in many other subjects, as well as upon glass.

Plate LVII. is another antique rosette, introduced to shew the ancient method of vitrifying thin plates of various coloured glass to the plain ground. This subject was used to fill the centre of a quartfoil in the angle of a window, and had a very bold effect, when double the size of the pattern.

The light yellow square, in the centre, was stained by the method used to obtain this coloured stain, as described in this work. The round piece of ruby, in the centre, was another piece of thin glass, stained this colour, and made to adhere to the yellow glass, by means of flux and vitrification. The blue was laid on the glass in the same way. The orange, forming the diamond, was stained on the large piece of glass; this was enclosed in leading. The green, on the outside, was pot metal, diapered with a strong iron shade, like No. 16. The shading on the blue and yellow was probably done with the same colour, and the whole fixed with one burning.

The examination of this subject will account for the frequently mutilated appearance of ancient work, which has in some parts lost every vestige of colour, without the glass being broken, while other parts are as vivid as if just executed.

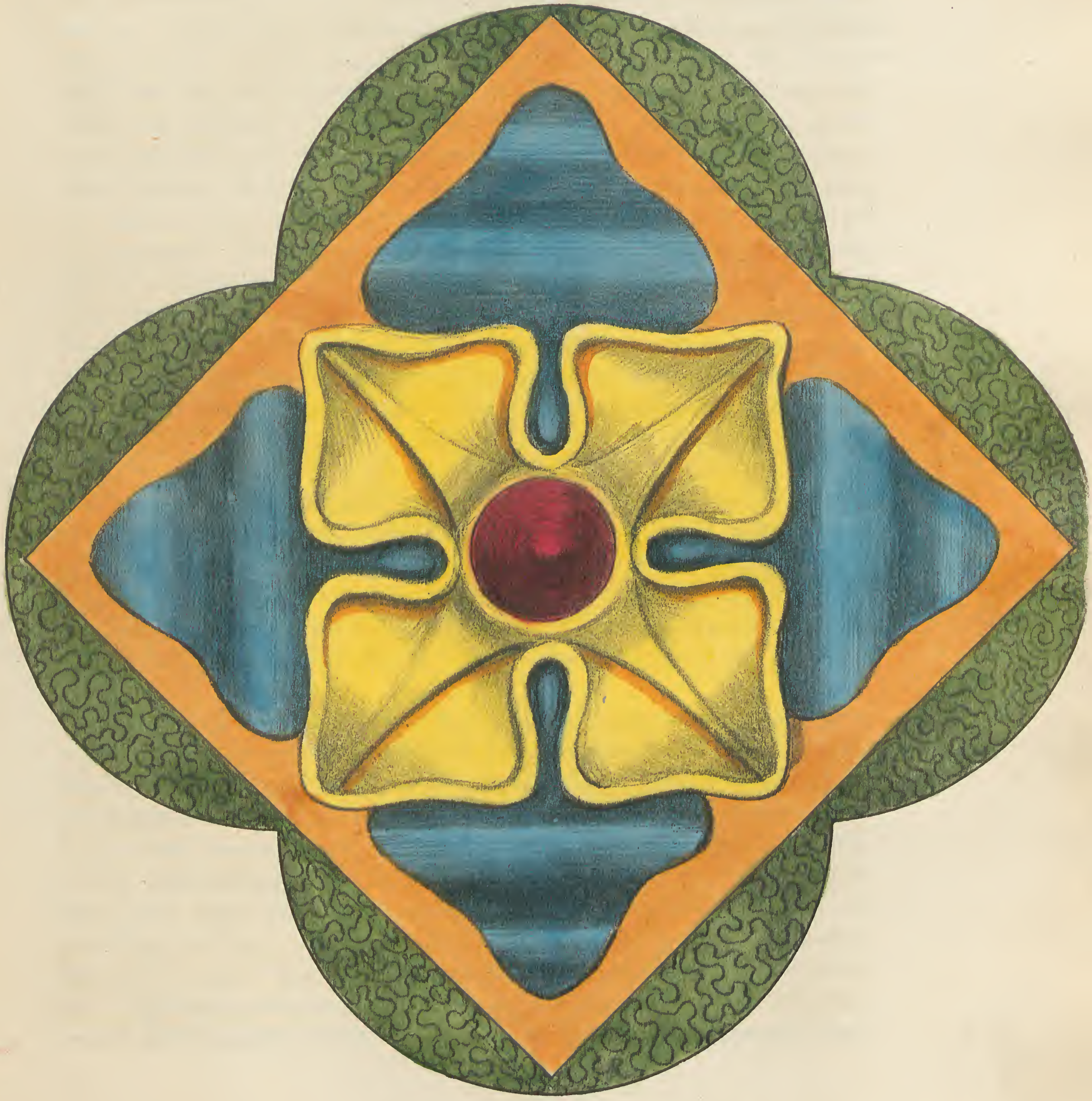
The glass painter who has not acquired the power of drawing and painting with tolerable facility and execution, can proceed no farther in the art of painting glass, as the subjects that will now come under notice require taste, ability, and a considerable power in drawing, not merely animals of various kinds, but also the more difficult and interesting study of the human figure.

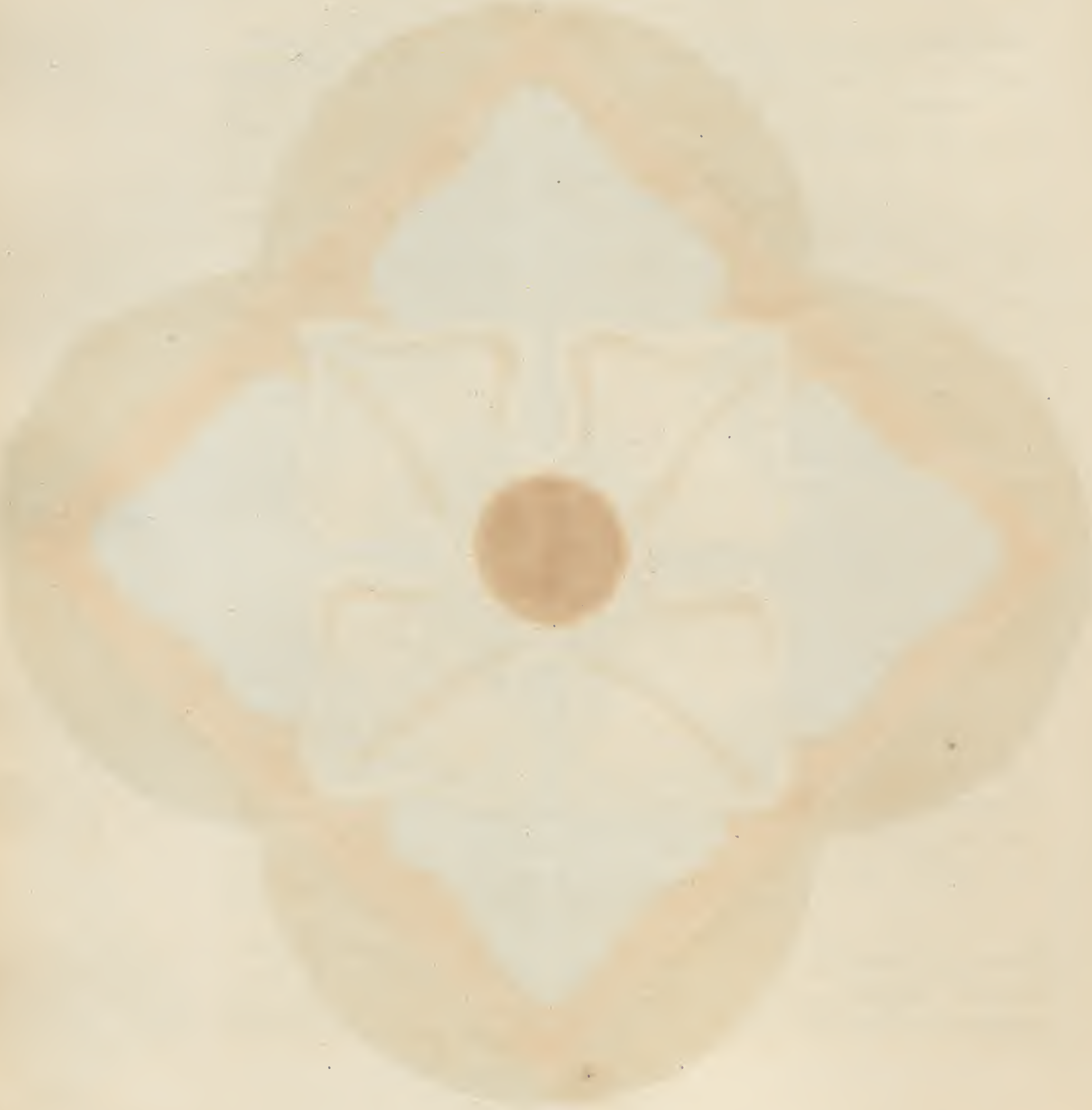
The brief instruction that will be found in the following pages will not only be applicable to glass painting, but will, it is hoped, be found of great service to the sign and herald painter; who will find definite

STAINED GLASS

ANTIQUE ROSETTE FOR QUART FOIL

Plate LVII





rules laid down, whereby he may, by perseverance, be enabled to enter upon the highest branches of painting; many of the most eminent historical painters of the present day having commenced their studies with no higher aim than sign painting. This branch of the art was certainly more in use some years back than it is at the present day: but this, in a great measure, arises from the few painters who make it a profession. Portrait and historical painters think it beneath them, and the generality of persons who attempt to paint animals, or other figures, execute them so indifferently, that it is usual to require the name to be written under the subject to know what it is intended to represent. It is not to be doubted, when every shopkeeper is using all the means in his power to make his shop remarkable, so that it may attract public attention, but sign painting would be as popular as ever in a short time, if it could be creditably executed at a reasonable price; and the house painter would find this department of his business a pleasing and profitable employment, during the dead winter months.

Previous to entering upon this most interesting and valuable part of the art of staining and painting figures on glass, it will be necessary to give a few brief directions on the proportions of the human figure, which, if properly attended to, will prevent any glaring errors in the productions of the glass or sign painter. Of course the general observations on drawing the figure will be equally useful to both.

In almost all the whole-length figures left by the Greek and Roman sculptors (whose rules of proportion are generally found to correspond with nature), the length of an upright body was equal to eight times the length of the face, measuring from the end of the chin to the crown of the head: and, in order to shew the divisions in the body, according to this rule, a diagram will be found at Plate LIX*., containing a front, back, and side view of the human figure, by which it will be seen that in Fig. *a*, (front view) the first space or eighth is occupied by the head. The second space reaches from the chin to the armpits. The third crosses the body, at the end of the ribs, and likewise crosses the first joint of the arm. The fourth, which is the exact half of the figure, reaches to the bottom of the abdomen, and likewise crosses the wrist. The fifth comes half way down the thighs. The sixth cuts the bottom of the patella or knee-pan. The seventh comes half way down the legs ; and the eighth completes the figure.

If the painter, who is about to draw an upright figure, refers to this rule, it will never be greatly out of proportion, and it will always form a standard by which he can judge the work of others. This is only a general rule to those who aim at no higher excellence than sign painting requires.

The painter who would draw the human figure correctly, should study the anatomy of the bones, and the external muscles; but it cannot be expected, in a work of this sort, that the subject can be entered upon so deeply, particularly as the original limits to which it was intended to be confined are already exceeded. To those who would commence the study of the human figure, with the intention of becoming portrait or historical painters, a small work, by Tinney, called Anatomy for Painters, may be studied with advantage. The sign painter will content himself with endeavouring to copy the work of others, and to him the following directions from Le Brun, who was particularly excellent as a figure draughtsman, will be found to contain nearly all the information that can be conveyed by writing.

Begin with the head, and be sure to give it its just proportion answerable to what you intend the whole body shall be ; then draw the shoulders in their exact breadth ; next to them the trunk of the body, beginning at the arm-pits, and so drawing down the hips on both sides, observing the exact breadth of the waist ; and, in the last place, draw the legs, arms, and hands, according to the proportions given in Fig. 1., Plate LIX*. Let those joints, sinews, muscles, and veins, that are parallel, be placed opposite each other, in a straight line, as shoulder to shoulder, hip to hip, knee to knee, &c. In order to do this, divide the figure with lines, as above, taking them for your guide; of course drawing them very slightly, that they may be easily taken

Plate LIX.*

Fig. 1

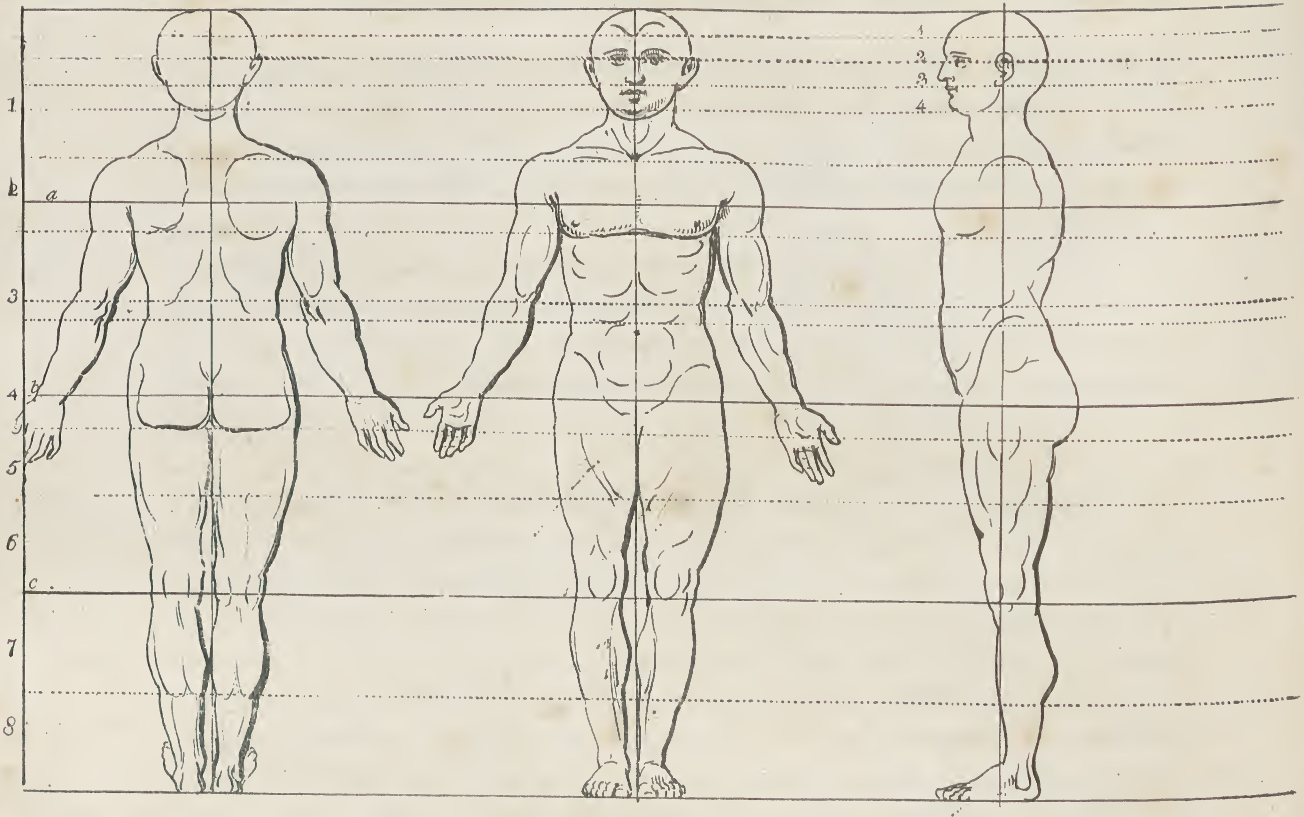

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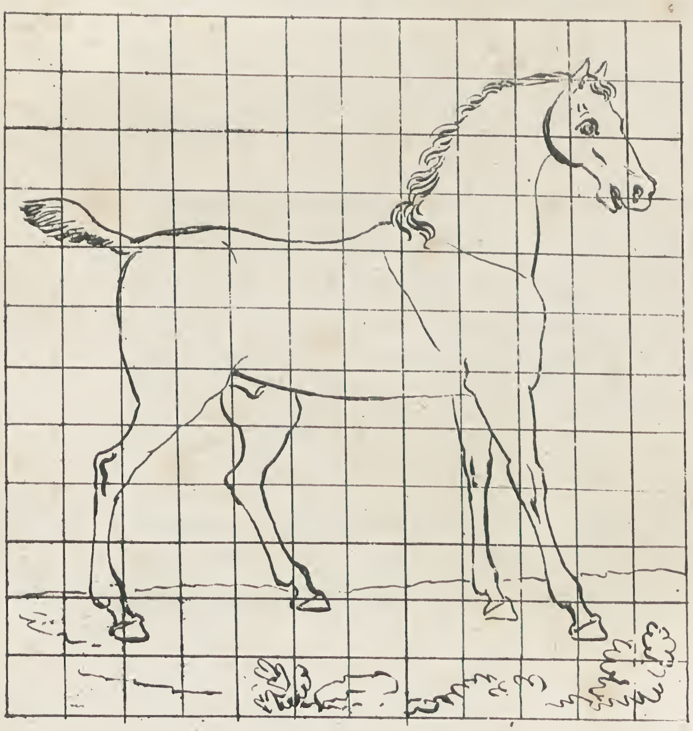
Fig. 2.



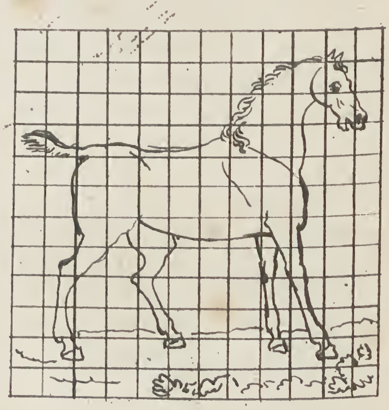
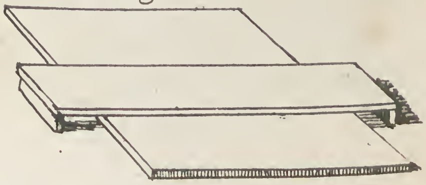


Fig. 3.



but when the drawing is finished, and whatever way the body turns or bows, draw the lines in the same direction.

Place all perpendicular joints and parts in a right line, one under another, for which purpose draw a straight line, if the body is straight, from the chin through the middle of the breast, right down to the feet, as seen in the pattern, to which draw all the parts that are parallel, that the body may not seem crooked or awry.

If the figure drawn represents a warrior or any other man using strong exertion, draw him with strong limbs, raised muscles, swelling, and standing out. If a man reclining, or a delicate female, the practice must be directly the reverse.

In all pictures the principal figure ought to appear in the centre, under the strongest light, that it may be more remarkable than the rest, and not be hidden or obscured from the sight by any other object. If the piece has but a single figure it ought to be perfectly finished in all its parts. The drapery should be spread over it in large bold folds, and not hanging like cords; let it follow the order and motion of the limbs, that their action may be distinguished through the drapery.

There is a means of facilitating the sign painter by enabling him to enlarge or reduce a picture, by dividing it into squares. This method will be immediately seen by referring to Fig. 2. Plate LIX*. Here a small drawing of the sign of the white horse is seen: supposing this to be a print about twelve inches square, and the painter wished to paint a sign from it four times the size, he would divide the drawing into squares, by drawing lines one inch from each other across the print, and again at the same distance apart, from the top to the bottom: the whole drawing will then be divided into one hundred and forty-four squares. If the board to be painted is just three times the size, it will only be necessary to have the lines three inches apart, each way, to give the same number of squares, enlarged to the proper proportions. Then, commencing with the outline of the horse, observe attentively where it cuts the squares on the small drawing, and draw lines of the same form, on the large board; of course, if the line cuts the square half way down in the print, it must cut in the same proportion on the larger subject. By this means the student will find an attentive observation of these brief directions of the greatest service when he attempts either of the Gothic niches, containing a single figure in Plate LIX.

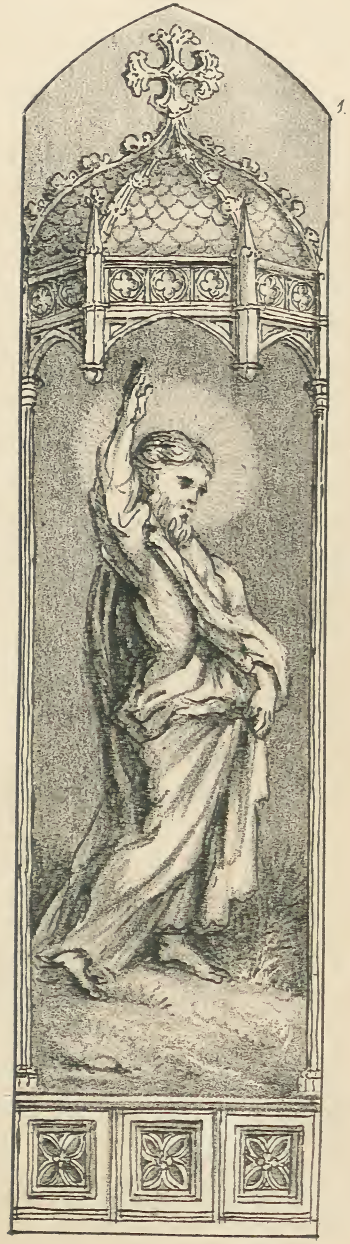
The first represents Christ preaching on the Mount: this is taken from one of the windows, painted by Walter Crabeth, at Goda. The second is a whole-length of St. Augustine, taken from Canterbury Cathedral. The third is St. Paul, from an ancient window at New College. The fourth is a Knight in complete armour, taken from the great window at Goda.

The drawing, disposing, and leading of these four figures will enable the student to understand the principle upon which whole-length figures were formed in ancient glass; and shew that equal or superior figures could be produced at the present time, by having recourse to the same means.

As a single coloured figure, properly divided, may make the process more clear to the glass painter, it will be advisable to turn to Plate LXII. which contains a whole-length figure of St. Athanasius, drawn much larger and properly divided for leading. If it is intended to paint this, it will be requisite first to determine the size; if it is to appear the size of life, the drawing must be increased by squares. The size of the square required to contain the figure, as it now appears, is three inches by six and a half; consequently it will be necessary to increase it to twelve times the present size, which can be easily done by the method already pointed out. The drawing must be made upon sheets of cartridge paper, pasted together, and laid quite flat. If the figure is to appear in a niche, the outline of the whole should be drawn with great care, in every part, before the glass is laid upon it.

In the subject before us, the pieces of glass required for this figure are marked in order in the outline for leading on the annexed plate.

GOTHIC NICHES.



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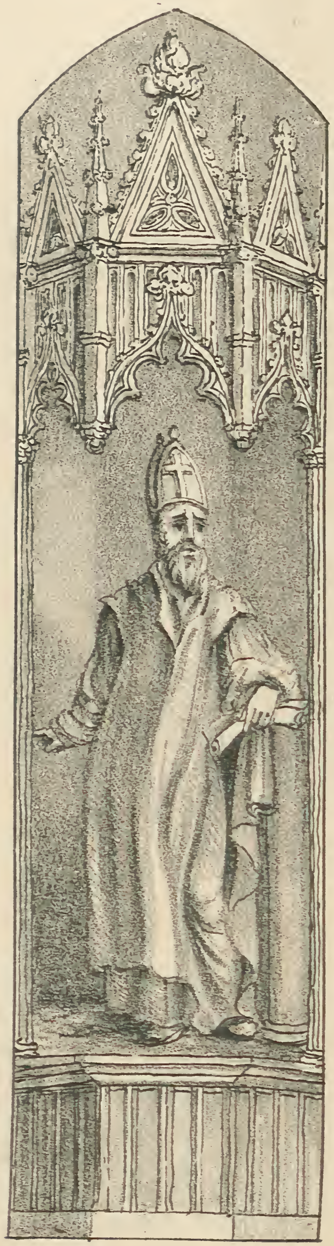

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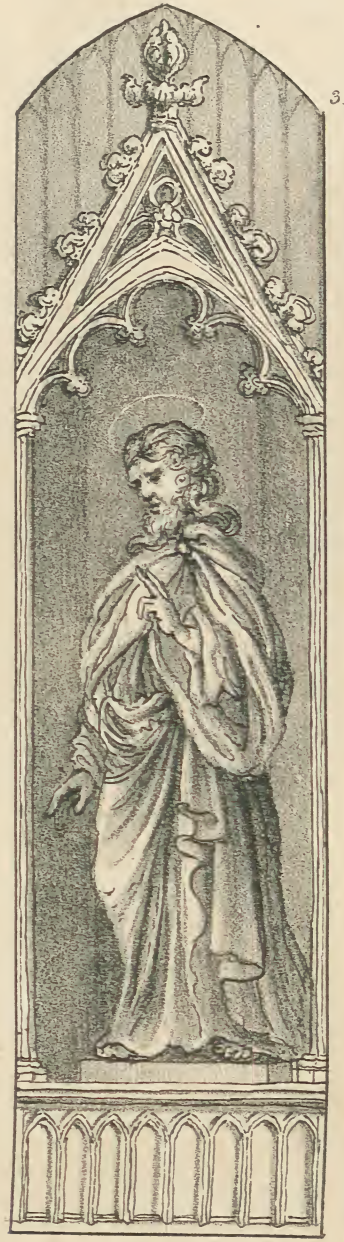

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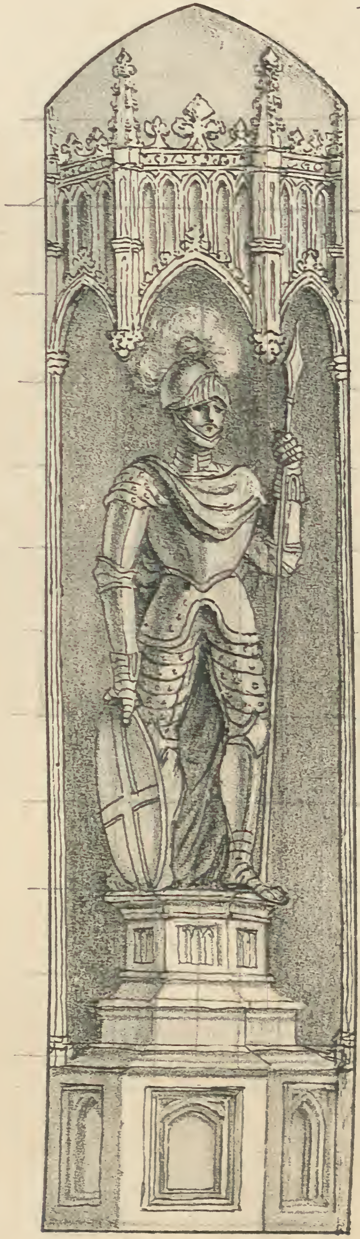

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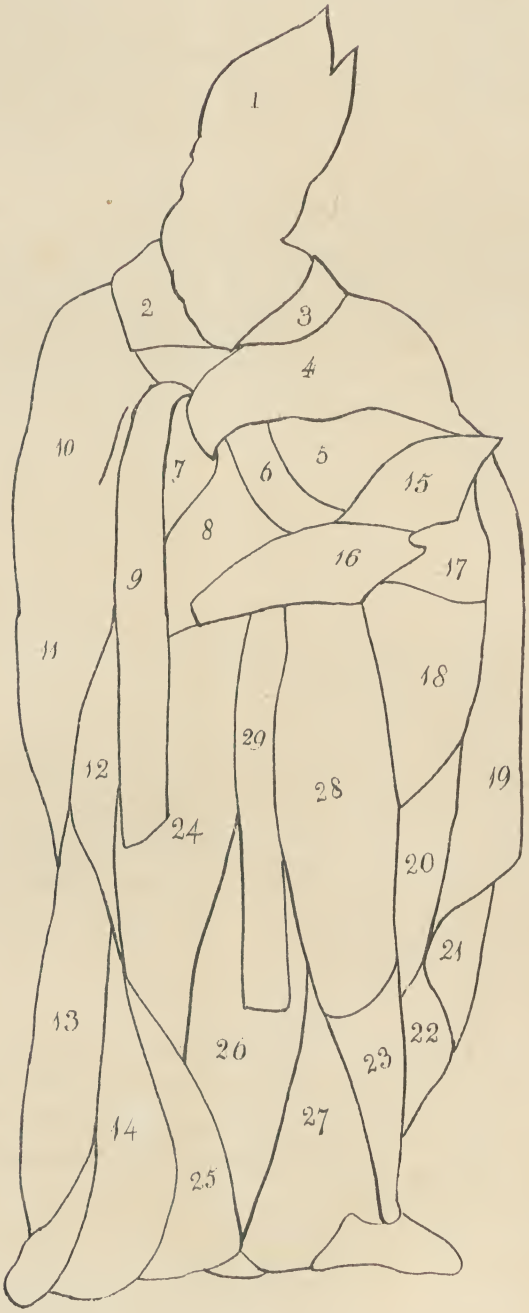
LEADING.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By referring to the coloured figure, it will be found that No. 1. takes in the whole of the head and beard; but if this piece of glass is inconveniently large, it may easily be divided at the second line of the mitre. As hard lines should be avoided about the head, because deep shadows cannot be introduced to hide the leading, it was thought better in this subject to make the head one piece, particularly as the shading round it may be quite opaque: it may be strengthened with leading in every part. This is one reason why so many small pieces are introduced under the beard, in order to support and strengthen the large piece required for the head. This is a point that the glazier should particularly attend to—wherever a large piece is introduced, to observe the dark folds in the drawing, and strengthen so as to protect it on all sides. This observation will apply more forcibly to the broad than the long pieces.

No. 4. contains the hand holding the pen and part of the robe: this could not very conveniently be made smaller, as hard lines would have had a very bad effect coming upon the fingers. This piece is well supported by 5, 6, 7, 8, 15, 16, 17. All the other parts are easily and naturally given by the folds of the dress, so that the leading may be completely hidden by the opaque shading.

In cutting this glass the glazier will have to determine what part is to be pot metal, and what part may be cut from crown glass for staining or painting. No. 1. is crown glass; so are 2, 3, 6, 7, 9, 15, 16, 17, 23, 28, 29, 30. Nos. 4, 10, 11, 13, 18, 19, 20, 21, 22, are purple pot metal, inclining to crimson. The remaining space is occupied with blue pot metal, as light as it can be procured. As far as cutting the glass is concerned, the glazier has now completed his task; the pieces must all be numbered while lying on the drawing.

The painter should commence this subject with No. 1. by drawing the outline of the mitre, and the ornaments upon it, with No. 16. The outline of the features may be drawn with the same colour; the painter should keep in mind the situation where the figure is to be placed, when executed; if it is in a high situation, the touches will be required to be massive and bold, otherwise the head, however highly finished, will look feeble and light; and it requires far less labour to give effect to a distant object, than it does to one that is near.

The face must be stippled, that is, painted in short thin lines, as it would be impossible to spread a broad wash, or mass of colour over it, as in ordinary painting, nor can any stain of the colour be applied. French red chalk, with one part soft flux, makes the best flesh tint, and the strong shadows are produced with No. 16. The ermine, at the edge of the mitre, is white, No. 17. The beard is the same colour, shaded with No. 16.

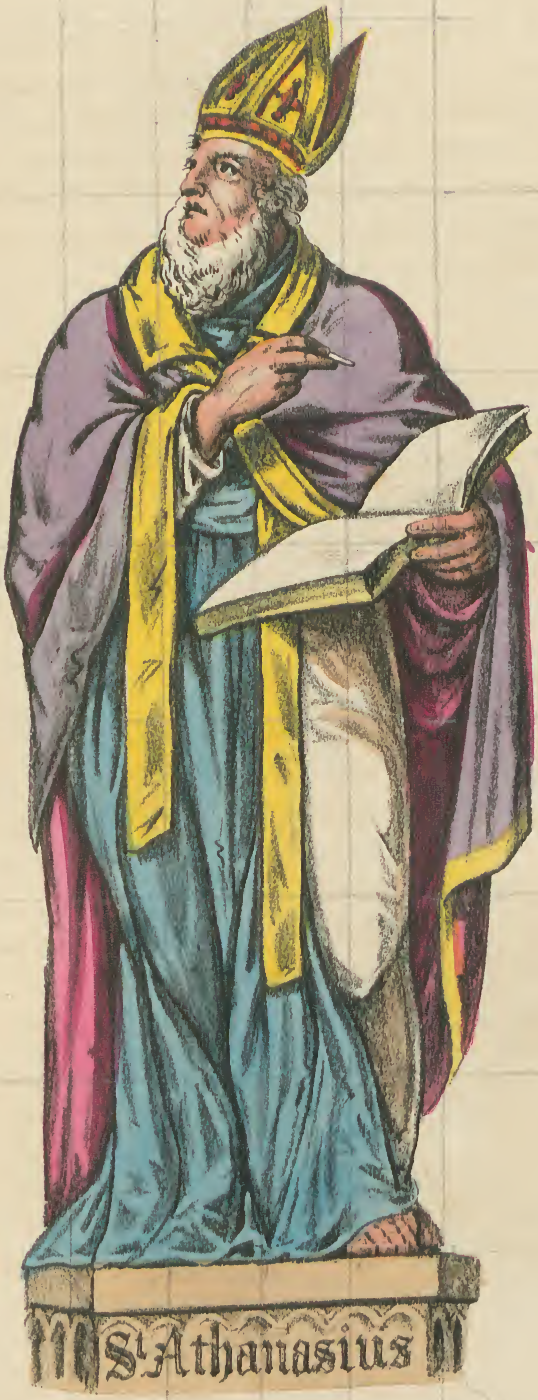
Having drawn the whole subject, turn the glass, and float on the yellow stain all over the mitre, and dab on the white for the beard, ermine, and white of the eyes. No. 1. will be ready for burning.

No. 2. and 3. are shaded with No. 16. taking care to let the shadow near the leading be very strong, and appear faint, as it comes from the edges, so that the line formed by the lead may not be perceptible when the figure is finished.

No. 4. is the hand. This must be got up in hatches or stippling, like the face, and shaded with No. 16. The shadow must be taken from the fingers, and worked down to the leading; and for this purpose the glass is required something larger than the hand.

No. 6. 9. 29. and the yellow forming the gilding of the leaves, at the edges of the book at No. 15. and 16. are all stained with the lemon yellow, and shaded with the warm brown shade, No. 23. The purple pot metal is shaded with No. 16. The colour of the metal must be left as the light, and the middle tint formed with the pencil colour, very lightly applied, and gone over again with the same colour for the shade; as this will appear nearly the same colour when burnt, as it does when first put on, the separate pieces can be compared together, to see if the shadowing is sufficiently strong in each, and that the whole will harmonize when joined. The same method must be used

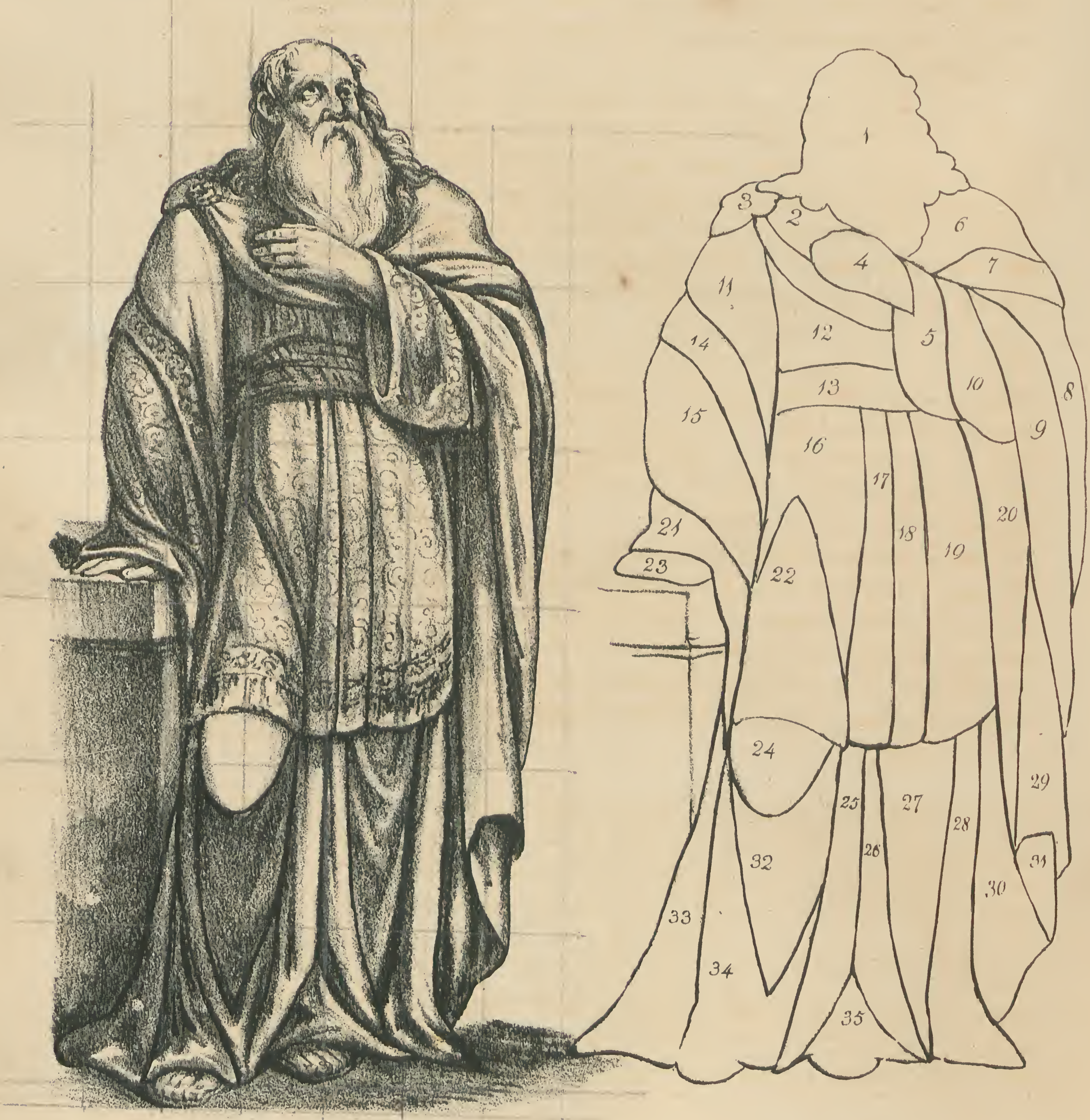
STAINED GLASS.



S^t. Athanasius

Plate LXX.

STAINED GLASS.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with the blue, with the exception of the first shade, or middle tint, being formed with No. 8. and the whole shaded in opaque touches, near the leading, with No. 16. The whole figure is now ready for the first burning.

After the glass has got gradually cold, take up all the pieces that are stained with yellow, and brush off the stain. Then taking the large piece, containing the mitre and the head, observe if every part is properly vitrified, and the whole firmly attached to the glass, particularly the flesh tint on the face. If there are any parts that do not adhere, the colour must be applied again, and every part now shaded up to the requisite strength, as it will be much better to finish the whole with two burnings if possible, particularly so large a piece as the head of this figure. The lining of the mitre, and the ornaments in the front of it, are red. This colour must be produced with the red stain, No. 2. which may be floated over the light yellow: that stain greatly contributing to the brilliancy of the red. All the other parts that have been stained with light yellow, should be touched in parts with orange stain, to give it a spotted appearance, like the dead parts of gold. The touches must now be strengthened on the white, and the pot metal leaded together, to see if the whole is in harmony. If the shading colour on the pot metal has been properly made and applied, the metal should only require once burning, but should any part be ineffective, of course it must be mended and burnt the second time, with the other parts.

Plate LXX. is a figure of the prophet Daniel, from West's picture of Belshazzar's feast. The vesture is green diapered, and the robe red. This figure is introduced for the purpose of showing how pot metal may be used in drapery. It has before been explained that there is no transparent green in any tint to be produced, without it is coloured while the whole mass is in a state of fusion; therefore, if green drapery is required, the green glass may be purchased at the manufactory, and the folds of the drapery painted on it with the grey shade, No. 19. or the pencil colour.

The diapering is produced by sifting No. 18. over the whole mass, which must be previously brushed over with a thin coating of amber oil, to make it adhere; as was before observed, the higher the sieve is held from the work, the finer the powder will fall upon it. When the oil is dry it will not hold the colour very firmly to the glass, so that it may be scraped off with ease, with a piece of wood cut in the shape of a pointed knife. With this instrument take out the pattern required, and the glass where the powder is left on, will, after it is burnt, be semi-transparent, and the parts where it is scraped off will be as brilliant as before. The robe is coloured with red stain, shaded with pencil colour, and must be burnt twice to bring it to the proper strength.

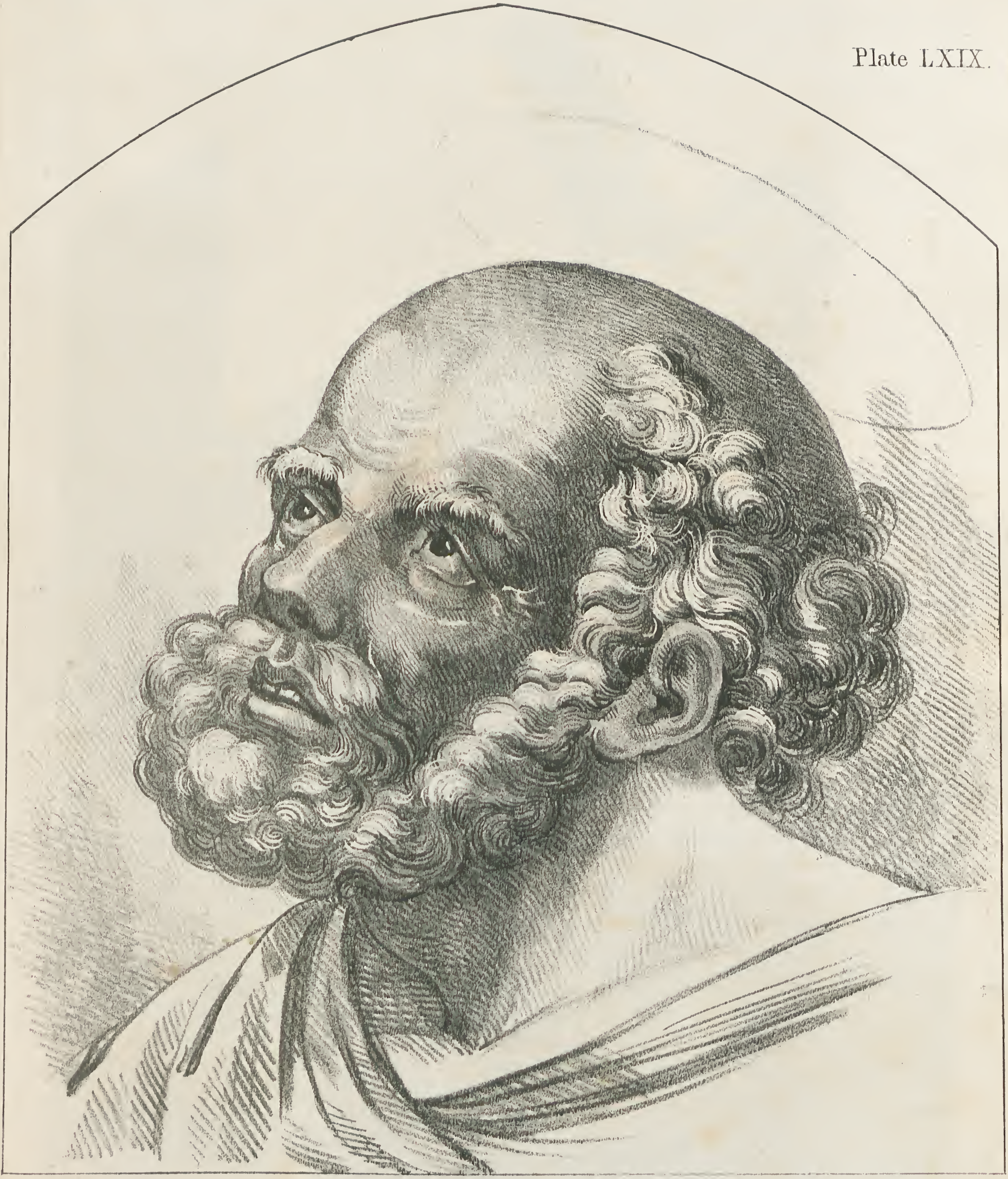
Another example of a beautiful figure, that may be nearly finished with pot metal, will be seen in Plate LXXIV. It is a drawing from the valuable altar piece in the chapel of Magdalen College, Oxford. This figure is well adapted for a single light. The robe may be entirely composed of purple pot metal, shaded with the pencil colour; the cord may be introduced by leading. The head, hands, and feet, must be stippled up as before directed; but, in order to make the method of shading flesh with short lines or hatches clearly understood, the student will find, at Plate LXIX. the head of St. Peter, drawn half the size of life, and executed exactly as required for glass. The strong lights on the forehead, eyebrows, and hair, are scraped out with a point, after the colour is dry.

The preceding examples will prove the great utility of the pot metal, and its easy application to whole-length figures, and prove that they may be executed with as much brilliancy and effect, as by the ancient masters, as glass can be tinged in the mass to almost any colour.

The pot metal, as will be shewn in the next chapter, can be introduced with great advantage in heraldry, or in the panels of gothic niches, where a diversity of brilliant colours are required.

STAINED GLASS.

Plate LXIX.



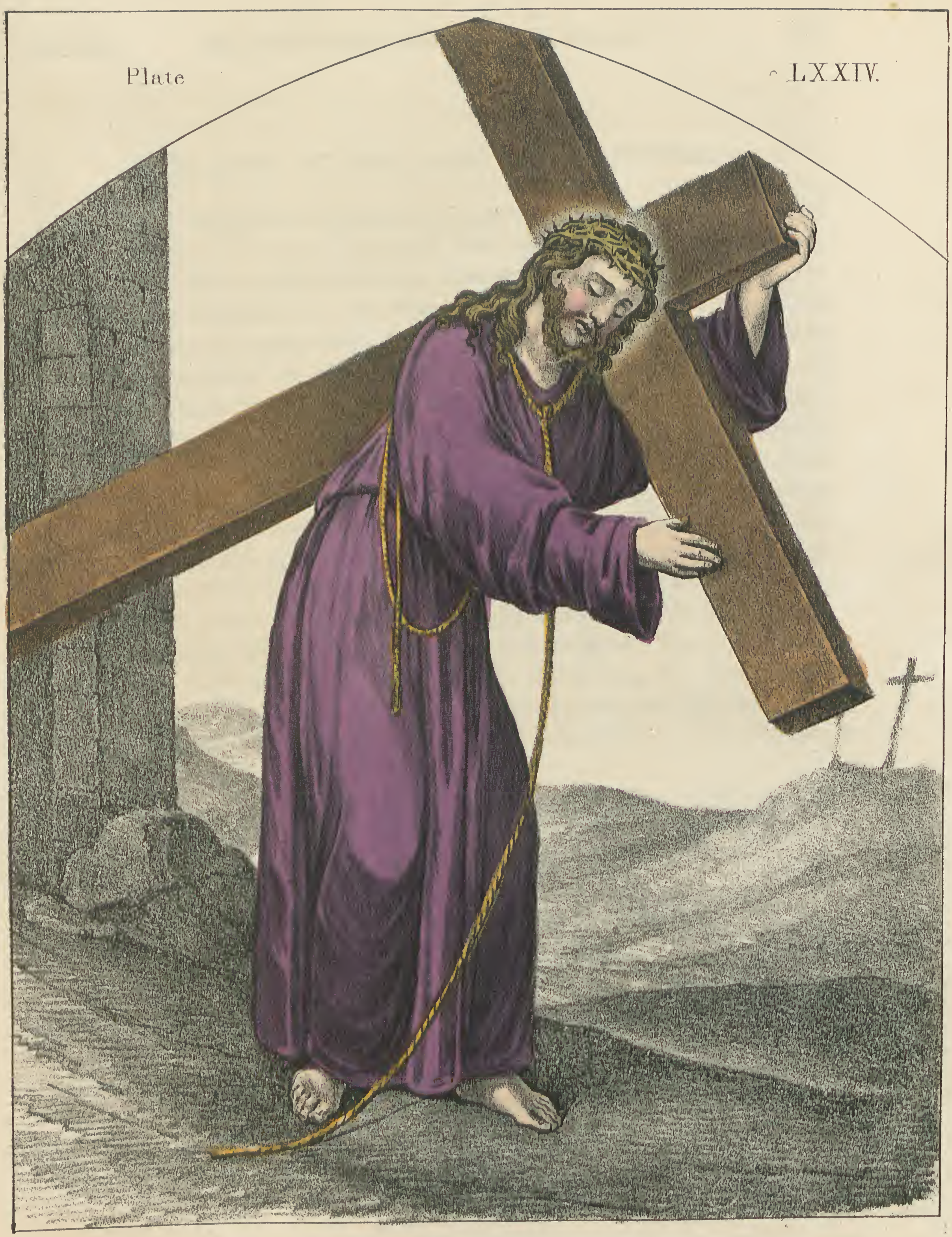


Plate
LXXIV.

ELEMENTS OF HERALDRY FOR PAINTERS.

Heraldry furnishes such elegant and appropriate ornaments for stained glass windows, and has at all times been so much used in churches, colleges, and other public buildings, that it is used at the present day, nearly to the exclusion of all other subjects; and though the glass painter would, in most cases, expect to have any arms that he is required to produce on glass, sent properly emblazoned for him to paint from, yet, in many cases, where this is done, the painter who has not the slightest knowledge of heraldic lines and figures, is constantly liable to commit glaring errors, and, of course, spoil the work; as that which appears a very slight error to the painter may be fatal to the whole subject when viewed by a person conversant with heraldry. In many cases both the glass and herald painter will have to produce a coat of arms in true heraldic colours, from an engraving on a seal or a common print, which he cannot do unless he is aware of the terms, and the mode of expressing colours by lines in heraldry. To obviate this difficulty the following brief rules on this ancient art are introduced previous to entering on the method of producing the heraldic subjects in stained glass from the plates contained in this work.

The following epitome of the elements of heraldic ornaments is founded on the voluminous works of Guillim, Kent, Porney, and others; and every endeavour has been used to render this branch of study as easy as the subject would admit. Any term that cannot be explained by words will be understood by a reference to the explanatory figures contained in the plates. The whole will be found of the greatest service to the painter who wishes to study the art of herald painting, either on glass or any other material.

Heraldry is a science which teaches how to blazon arms, that is, explain in proper terms all that relates to the different figures composing coats of arms, and how to dispose them regularly on the shield or other object, which in heraldry is called the field.

Arms, or coats of arms, are marks of honour, made up of fixed and determined colours, figures, &c. either hereditary or granted by sovereign princes, as a reward for military valour, great virtue or ability, or signal public services, and serve to denote the descent and alliance of the bearer, or to distinguish states, cities, or societies, &c. whether civil, ecclesiastical, or military.

This mode of distinguishing the families and connexion of eminent personages, is of high antiquity. The twelve tribes of Israel were distinguished by different objects; and in the most ancient records and poems the device and crest of the warriors of different nations are described with great minuteness. Many of the European families who are entitled to bear coats of arms, at the present time, claim them from the heroic deeds of their warlike ancestors, who joined the crusades for the recovery of Jerusalem. Many ancient English families gained them from the courage and conduct of their forefathers in the battles of Cressy, Poictiers, and Agincourt. Since that time sovereigns have allowed those they please to favour, to bear these marks of honour, which are called arms, from their being principally worn by military men at tilts and tournaments, as well as in the pursuit of war. They had them engraved, embossed, or painted on shields, targets, banners, or other martial instruments. They were called coats of arms from the custom of the ancients embroidering them on the vest or coat they wore over their armour; they were loose, and without sleeves, like those worn by heralds at the present day.

Arms are divided by M. Porney, a French author, who has written a very elaborate and learned treatise on heraldry, into the following classes:—First, of distinction; Second, of pretension; Third, of concession; Fourth, of community; Fifth, of patronage; Sixth, of family; Seventh, of alliance; Eighth, of succession.

Arms of dominion or sovereignty are those which emperors, kings, and sovereigns constantly bear, being perpetually annexed to the kingdoms and states they possess. Thus the three lions are the arms of England, the fleur-de-lis those of France, &c.

Arms of pretension are those of such kingdoms, provinces, or territories, to which a prince or lord has some claim, which he adds to his own, although the said kingdom or territories are possessed by a foreign prince, or other lord. Thus the kings of England have, till a very short time back, quartered the arms of France with their own, ever since Edward the Third laid claim to the kingdom of France, in the year 1330, on account of his being son to Isabella, sister to Charles King of France, who died without issue.

Arms of concession, or augmentation of honour, are either entire arms or else one or more figures, given by princes, as a reward for some extraordinary service. Thus Robert Bruce, King of Scotland, allowed the Earl of Wintour to bear, in his coat armour, a falling crown supported by a sword, to shew that he, and the clan of Seaton, of which he was the head, supported his tottering crown. The arms of Lord Nelson, and the additions to those of the Duke of Wellington and others, are of the same kind.

Arms of community are those of bishoprics, cities, universities, academies, societies, companies, and other corporate bodies.

Arms of patronage are such as governors of provinces, lords of manors, patrons of benefices, &c. introduced in their family arms, as tokens of superiority, rights, and jurisdiction. These arms have introduced into heraldry, castles, gates, wheels, ploughs, rakes, harrows, &c.

Arms of family, or paternal arms, are those that belong to one particular family, that distinguish it from others, and which no persons have a right to assume without committing a crime which sovereigns have a right to restrain and punish.

Arms of alliance are those which families or private persons take up and join to their own, to denote the alliances they have contracted by marriage. This sort of arms is either *empaled* or borne on an *escutcheon* *of pretence*, by those that have married heiresses. The above terms will be explained in the proper place.

Arms of succession are such as are taken up by those who inherit certain estates, manors, &c. either by will, entail, or donation, and which they either empale or quarter in their own arms, which multiplies the titles of some families out of necessity, and not through ostentation, as many imagine.

Heralds, in the present day, make another class of arms, called assumptive; being such as are taken up by the caprice or fancy of upstarts, however mean their extraction, who, having acquired a degree of wealth, either assume arms without having deserved them by any glorious action, or appropriate to themselves those of any family whose name they happen to bear.

The essential and integral parts of coats of arms are—the escutcheon, the tincture, the charges, and the ornaments.

THE SHIELD OR ESCUTCHEON.

The shield or escutcheon is the field or ground, whereon are represented the figures that make up a coat of arms; for those marks of distinction, though put on banners, flags, or coat armour, are still on a plane, whose form resembles a shield.

It would far surpass the limits of this work to enumerate the form and use of the shields on which arms are displayed; but, as at the present time, the form of the shield is rather left to the fancy of the painter or carver, than requiring any definite rule, the omission will be of no consequence to the herald painter.

The shields seen in Plates LV. and LXIV. are the form generally found in stained glass in churches and ancient buildings, and if the painter wishes a window to assume the appearance of antiquity, are the most proper to effect that purpose. There is one distinction that will require to be attended to, and that is, that the escutcheons or shields of ladies, whether unmarried, or ladies in their own right, married to private gentlemen, or widows, are, or ought to be, in the form of a diamond or lozenge. These may be ornamented, and inclined either to the right or left. See Fig. 1. Plate LXI*.

Heralds distinguish several parts in escutcheons, in order to determine exactly the bearings they are charged with. A shield or escutcheon will be found Fig. 2. Plate LXI*. on which is placed the first nine letters of the alphabet, over particular points that denote the parts of the shields.

A is called the dexter chief.
B the precise middle chief.
C the sinister chief.
D the honour point.
E the fess point.
F the nombril point.
G the dexter base.
H the precise middle base.
I the sinister base.

No person can be a herald painter who does not make himself master of the different names that distinguish one part of the escutcheon from the other, as they are frequently occupied with several things of different kinds. Independent of other considerations, the herald painter is frequently called upon to paint a coat of arms from a written description, in heraldic terms, which, unless he knew them, it would be impossible for him to execute without a pattern, and, even with one, he is very likely to run into error, unless he takes the trouble to learn the terms which may be called the grammar of his art. The glass painter will generally be supplied with patterns properly drawn, and coloured by the herald painter; to him, therefore, who confines himself to glass painting, it is not of so much importance to become acquainted with the names of the different figures and colours used in heraldry; but to the painter of hatchments and other subjects, this knowledge is of the first importance.

TINCTURES.

Colours in heraldry are called tinctures, and though the usual sense of the word colour is the dye or stain of the pigment or substance by which any thing is tinted or stained; yet, in heraldry, colours are expressed by the names of several kinds of metal, precious stones, and planets, which have some resemblance or affinity to it.

Arms are emblazoned or coloured by metals when they belong to gentlemen, esquires, knights, and baronets; by precious stones when they are those of barons, viscounts, earls, marquises, and dukes; and by planets when they belong to sovereign princes, kings, and emperors.

The colours used in heraldry are nine, viz.:—

Colours.	*Names in Metal.*	*Stones.*	*Planets.*
Yellow,	Or,	Topaz,	Sol,
White,	Argent,	Pearl,	Luna,
Red,	Gules,	Ruby,	Mars,
Blue,	Azure,	Sapphire,	Jupiter,
Green,	Vert,	Emerald,	Venus,
Purple,	Purpure,	Amethyst,	Mercury,
Black,	Sable,	Diamond,	Saturn,
Orange,	Tenny,	Hyacinth,	Dragon's Head,
Murrey.	Sanguine.	Sardonyx.	Dragon's Tail.

Since the art of engraving has become so generally used, certain lines and marks have been used to denote these colours on paper. This will be understood by referring to Plate LX.

Fig. 1. is a shield; the ground or field of which is or, which signifies gold: in colour yellow. This is always expressed in engravings by small dots.

Plate. LX.

HERALDRY.

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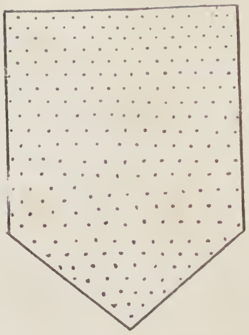

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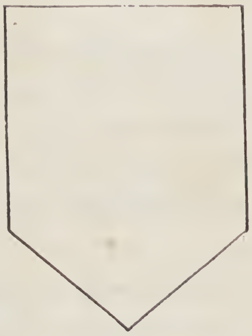

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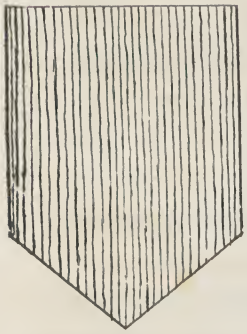

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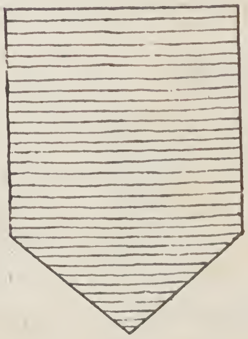

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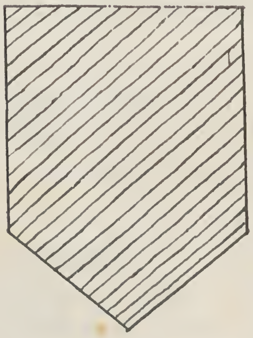

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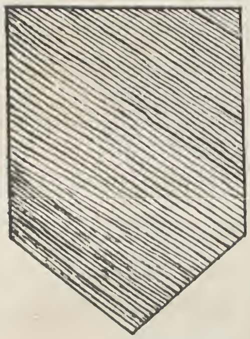

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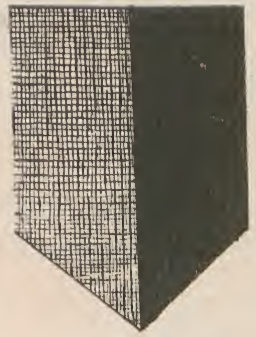

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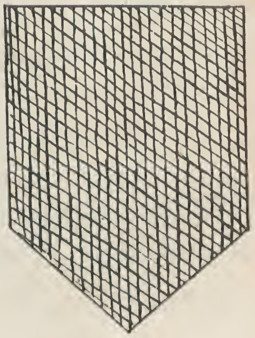

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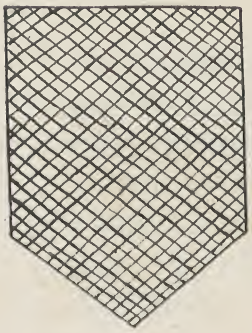


Fig. 2. is argent, silver. This is left quite white.

Fig. 3. gules, red. This is expressed by perpendicular lines, drawn from the chief (the top) to the base of the shield.

Fig. 4. azure, blue, is marked by a succession of lines running horizontally, that is, lines running parallel to the chief of the shield.

Fig. 5. (by error marked 6), vert, green. This is represented by diagonal lines, drawn descending from the dexter to the sinister side of the shield. It may be, perhaps, necessary to remark, that the dexter side is the right side of the shield, and the sinister the left; consequently the right arm of the person looking at it will be opposite the sinister side, and the left arm to the dexter side.

Fig. 6. (by mistake of the engraver marked 5), purpure, purple, is expressed by diagonal lines, drawn contrary to those of vert, that is, descending from the sinister to the dexter side. It will be observed that the lines of some of the shields are finer than others; this is done to shew that it makes no difference in denoting the colour whether there are many or few. The colour is always determined by the way in which it runs.

Fig. 7. sable, black, formed by horizontal and perpendicular lines crossing each other. Sable, in painting, is made quite black, and is generally made so, like one half of this shield, in old cuts.

Fig. 8. tenny, orange tawney, is formed by diagonal lines, drawn from the dexter to the sinister side of the shield, and traversed by perpendicular lines from the chief.

Fig. 9. sanguine, dark red, brown, or murrey colour, is represented by the lines crossing each other diagonally from both sides.

The furs used for the lining of robes and garments of state are introduced into heraldry, and are likewise represented by lines and figures, not only in ornamenting the mantles on which the emblazoned shield is placed, but also in the shield itself. These furs take their names in heraldry from the animals they are taken from. The ermine is a small animal, something like a weasel, both in form and size; its skin is delicately white, and very soft. The furriers spot the skin with small black tufts; but these are taken from other animals to heighten the beauty of the ermine. The vair is a little animal, found in Africa, whose skin is white under the belly, but grey upon the back.

Ermine is represented in heraldry, as in Fig. 3. Plate LXI*. This is a field argent, with small points or spots, sable, in the form of a triangle, with small tufts of three or four lines hanging from them. This in heraldry is generally called powdering.

Vair is of argent and azure. It is represented in heraldry in the form of small bells, or cups, reversed in such a manner that the base argent is opposite to the base azure. See Fig. 4. Plate LXI*.

Both these furs have a number of different names, given according to the field or ground they are painted on; but it is not necessary in this work to enter into all the nice distinctions of heraldry; those who wish to study this science deeply, should procure works entirely devoted to the subject.

OF THE LINES USED IN PARTING FIELDS.

Escutcheons are either of one tincture, or more than one; if only one colour, metal or fur is spread over the whole field: such a tincture is said to be predominant. But in shields that have more than one tincture, as most have, the field is divided by lines, which are named according to their forms.

The perpendicular, horizontal, and diagonal lines are well known to every painter; the crooked lines used in heraldry are those which are carried unevenly through the escutcheon. They will be found in Plate LXI*. Fig. 5., and are called as follows :—*a*, the engrailed; *b*, the invested; *c*, the wavy; *d*, the embattled; *e*, the nebule; *f*, the raguly; *g*, the indented; *h*, the dancette; *i*, the dovetail; *j*, the grafted.

The indented and the dancette seem to be nearly alike in form, but differ much in their quality; as the dancette is much wider and deeper than the other, and its teeth or angles never exceed three, whereas the number of teeth in the indented is not limited.

If a field is divided into four equal parts by any of these lines, it is said to be quartered, which may be done in two ways. The shield, *a*, Fig. 6. Plate LXI*. is quartered per cross, by being divided into four equal parts called quarters.

b, is a shield parted per saltier, which is made by two diagonal lines, dexter and sinister, that cross each other in the centre of the field, and likewise divide it into four equal parts.

The shield is sometimes divided into a greater number of parts, when it is intended to shew the arms of several families, and, in this case, it is called a genealogical achievement: these divisions may consist of six, eight, twelve, or sixteen quarters; and, in some cases, it is divided into a far greater number.

OF DIFFERENCES OF COATS OF ARMS.

Heralds have invented various differences or characteristical marks by which the bearers of coats of arms can be easily distinguished from each other, and their relationship to the principal determined. The ancient mode of displaying differences was by borders round the edge of the escutcheon; but as they are now disused, it will not be of much importance for the herald painter of the present time to become acquainted with them. The modern differences are of great importance, as they serve to shew not only the degree of seniority of sons to the principal bearer, but likewise the subordinate degrees in each house. They are nine in number, and are ranged as follows:—

Plate LXI*. Fig. 7. *a*, is the label that denotes the heir, or first son; *b*, the crescent, the second son; *c*, the mullet, the third son; *d*, the martlet, the fourth son; *e*, the amulet, the fifth son; *f*, the fleur-de-lis, the sixth son; *g*, the rose, the seventh son; *h*, the cross moline, the eighth son; *i*, the double quartfoil, the ninth son.

By these differences the six sons of Thomas Beauchamp, Earl of Warwick, are distinguished, in the old stained glass window in St. Mary's Church, Warwick. This Earl was the fifteenth Earl of Warwick, and died in the thirty-fourth year of King Edward the Third, so that, although they are called modern differences, their usage is ancient. Should any of the brothers have families they shew their difference on the difference of the father. Thus the heir of a second son would have the label on a crescent; see Fig. 8. and so on for the rest.

CHARGES.

Heralds call whatever figure is displayed on the field, a charge, whether it occupies the whole or part. Charges are distinguished by the names of honourable ordinaries, subordinate ordinaries, and common charges.

Honourable ordinaries, the principal charges in heraldry, are made of lines only, which, according to their disposition and form, receive different names.

Subordinate ordinaries are ancient heraldic figures, frequently used in coats of arms, and which are distinguished by terms appropriate to each.

Common charges are composed of celestial, natural, and artificial, and even chimerical figures.

HONORABLE ORDINARIES

Are the chief, the pale, the bend, the bend sinister, the fess, the bar, the cheveron, the cross, the saltier.

THE CHIEF

Is an ordinary determined by an horizontal line, which, if it is of any other form but straight must be expressed. It is placed in the upper part of the shield, and occupies one-third of the depth. This ordinary is subject to be charged with a variety of figures, and may be indented, wavy, engrailed, &c. as will be seen in the examples contained in Fig. 9. Plate LXI*. 1 is azure, a chief engrailed or. 2 is argent, a chief invected vert. 3 is vert, a chief undy or.

Chiefs are given in heraldry to denote dominion and authority, and is a reward for wisdom and virtue.

THE PALE

Is an ordinary, consisting of two perpendicular lines, drawn from the top to the base of the escutcheon, and contains the third part of the centre of the field. Three examples are given at Fig. 10. Plate LXI*. 1 is gules, a pale or. 2 is argent, on an engrailed pale, three crescents or. 3 argent, a pale dancette vert. Numerous other figures might be given, but these will be sufficient to enable the herald painter to understand the meaning of the term.

THE BEND AND BEND SINISTER.

The bend is an ordinary formed by two diagonal lines, drawn from the dexter chief to the sinister base, and continues the fifth part of the field in breadth if uncharged, and a third part if charged. The bend sinister is of the same breadth as the bend, but drawn on the opposite side. Three examples are given at Fig. 11. Plate LXI*. 1 is argent, the bend wavy sable. 2 is or, the bend sinister gules.

Bends are the symbols of defence and protection, and denote belts of honour.

THE FESS AND BAR.

The fess is an ordinary which is produced by two parallel lines drawn horizontally across the centre of the field, and contains, in breadth, the third of the shield. The fess may be charged with a number of figures, and may be dancette, nebule, &c.

The bar is formed of two lines, and contains but the fifth part of the field, which is the only thing that makes it different from the fess. There may be several bars in an escutcheon, placed in different parts, whereas the fess is limited to the centre point.

Examples of the fess and bar are given at Plate LXI*. Fig. 12. No. 1. is argent fess, dancette sable. No. 2. is party per fess or, and argent, a fess nebule gules. No. 3. gules, two bars, or.

The fess or bar denotes the scarf of a warrior.

THE CHEVERON

Is an angular figure, something like the gable of a house or a pair of compasses half open; it takes up one-fifth of the field. Three examples are given of this ordinary in Plate LXI**. Fig. 2. No. 1. is argent, cheveron gules. No. 2. is sable, cheveron or. No. 3. is party per cheveron, engrailed or, and gules.

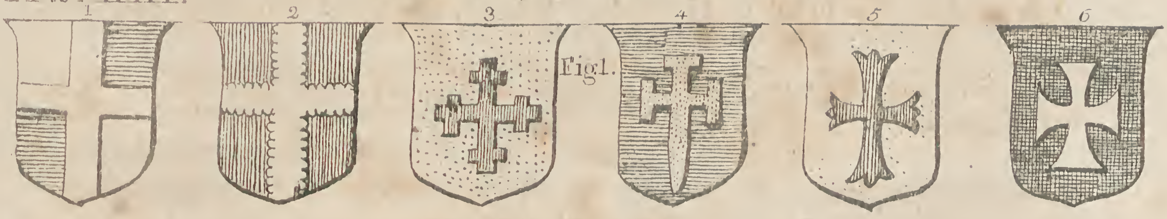
CROSSES.

There are so many different sorts of crosses in heraldry, that it would be impossible in a work of this kind, to give an idea of a tenth

Plate LXI.*

HERALD PAINTING.

Fig.1.



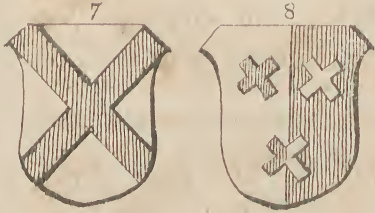
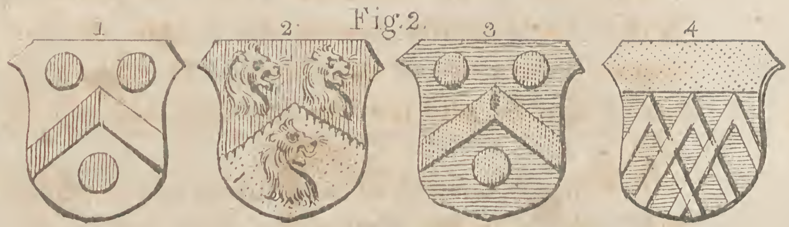


Fig.2.



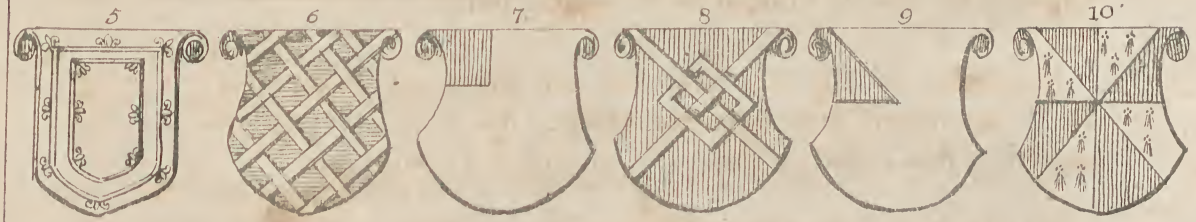
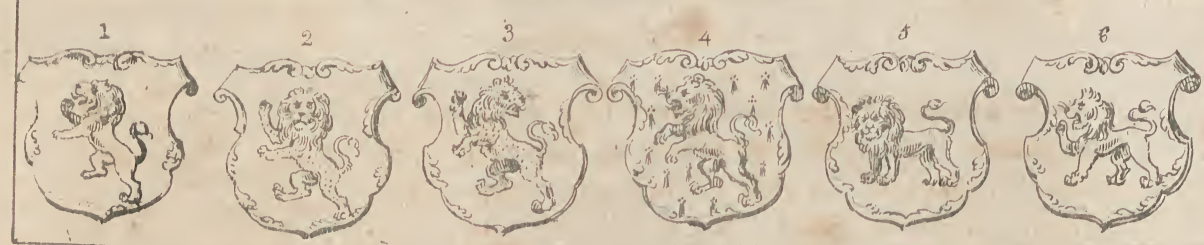
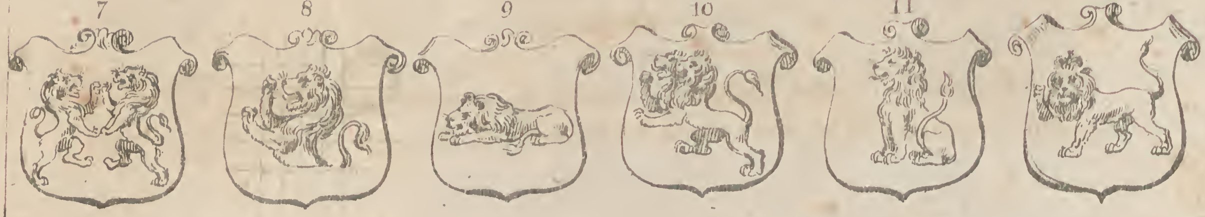


Fig.3.





part of them; every person must be well acquainted with the usual figure of the cross. The student will find six examples in Plate LXI**. Fig. 1. No. 1. is quarterly ermine and azure cross or. No. 2. is gules cross, engrailed argent. No. 3. or cross, crosslet sable. No. 4. azure cross, potent fitchy or. No. 5. argent, a cross patonce sable. No. 6. sable, a cross patee argent.

The cross is the symbol of christianity, and was the reward for religious exploits.

SALTIER

Is the figure usually called St. Andrew's cross; it is the bend and the bend sinister crossing each other. An example is given in No. 7, 8. Fig. 1. Plate LXI**.

The saltier denotes resolution, and was the reward for scaling walls of towns, &c.

SUBORDINATE ORDINARIES.

In addition to the before-mentioned figures, which were given for particular virtues or exploits, there are others called ordinaries or subordinaries, viz.:—The gyron, canton, fret, pile, orle, inescutcheon, tressure, flanches, flasques, voiders, lozenge, fusil, mascle, and rustre. An example of each of those figures may be seen in Plate LXII*. *a*, the gyron, is a triangular figure, formed by two lines, one drawn diagonally from one of the four angles to the centre of the shield; and the other drawn horizontally, from one side of the shield, meeting the slanting line in the centre of the shield. *b*, gyrony; this is when the field is covered with eight gyrons, as in this example. *c*, canton, is a square in an escutcheon, something less than one of the quarters: it represents the banner that was given to ancient knights and baronets; and, generally speaking, possesses the dexter point of the shield. *d*, the fret. *e*, fretty; this term is used when the field or bearings are covered with a fret of eight or more pieces, as in this example, which is gules fretty of ten pieces or. The word fret may be used without addition when it is of eight pieces only, but if there are more they must be specified. *f*, the pile, which consists of two-fold lines, terminating in a point; it is formed like a wedge, and is borne engrailed, wavy, &c. *g*, the orle, is a border going all round the shield, at some distance from the edge. *h*, the inescutcheon; this is a little escutcheon borne within the shield. The tressure is an ordinary, commonly supposed to be half the breadth of an orle, and is generally borne flowery and counter-flowery, as it is very often double and sometimes treble. This ordinary makes part of the royal arms of Scotland, and was granted the Scotch kings by Charlemagne, being then Emperor and King of France, when he entered into a league with Achaius, King of Scotland, in the year 809, and signifies that the French lilies should defend and guard the Scotch lion. *i*, the flanches are formed by two curved lines or semi-circles, being always borne double. *j*, the flasques resemble the flanches, except that the circular lines do not go so near the centre of the field, as may be seen by the example. *k*, the voiders. *l*, the lozenge, an ordinary of four equal and parallel sides, but not rectangular, two of its opposite angles being acute, and the other two obtuse. *m*, the fusil. *n*, the rustre.

The preceding are all the figures that are common to all parties, as honourable ordinaries and subordinate ordinaries. The common charges on shields are almost innumerable, composed of all sorts of figures, in earth, water, fire, and air, according to the taste of the parties first taking them; some according to their name, birthplace, or any casual circumstance. When figures in heraldry are said to be proper, it is intended that they should be painted after nature.

There are a variety of terms for the different positions of animals; and as the knowledge of them will be of great use to the sign, as well as the herald painter, they will be found as follows:—

LIONS.

The examples contained in Plate LXI**. Fig. 3. shew lions in different positions. No. 1. is a lion rampant; No. 2. rampant gardant; No. 3. rampant regardant; No. 4. salient; No. 5. statant gardant; No. 6. passant; No. 7. two lions rampant combattant; No. 8. demi-lion rampant; No. 9. dormant; No. 10. rampant, double-headed; No. 11. sejant; No. 12. passant gardant.

All these figures are useful to the sign painter, as the lion is so common a sign for inns all over the kingdom. The common error of painters is, that they paint red, white, gold, blue, and black lions, on a natural ground. There is no person of the least discrimination but must see the impropriety of this; for instance, we know that in nature there is no such a thing as a red lion, and yet this figure is commonly painted, with trees and rocks of the natural colour, which can only be proper when the lion is painted in his natural appearance; but if the noble animal is transferred to an heraldic ground, and put in either of the positions, there can be no absurdity in painting him any colour required, particularly as the heraldic lion is the origin of the variety of colours in which this animal is depicted in signs. The lion rampant, gules on a field or, makes a noble and appropriate sign of the red lion. The silver lion, on a black ground, has a very good effect, particularly if drawn on a shield. The lion in any colour, properly contrasted with the ground, if spiritedly drawn, will always look well, provided he is represented in one of the heraldic positions.

The observations made upon the lion will apply to the spread eagle and other birds introduced in heraldry.

CROWNS, CORONETS, HELMETS, &C.

Crowns and other head ornaments are frequently required by the sign and herald painter, and are a very useful and easily executed ornament in stained glass.

Crowns were used originally, by the Greeks, as rewards to the victors who obtained them as prizes for their skill and activity at the Olympic, Isthmian, and Nemæan games, and were composed of leaves or flowers. The Romans had ten different crowns to reward martial exploits and extraordinary services done to the republic.

The mural crown, see *a*, Fig. 1. Plate LXIII*. is a circle of gold, with battlements: it was conferred on the warrior who first at an assault mounted the walls of a besieged town, and there set up a standard. It is frequently used in coats of arms of military chiefs, and is the coronet for emblematic figures of any walled town or city.

The naval crown was given to him who first grappled or engaged an enemy's ship, or otherwise signalized himself by valiant exploits at sea. The circle was gold, with figures of shell fish, &c. engraved or embossed upon it, and the rays were formed with beaks and sails of ships: see *b*, Fig. 1. This still forms the crest of naval heroes who have signalized themselves in battle.

The vallary was a military crown of gold, formed like a circle, with pales or palisadoes on the top of it, see *c*, Fig. 1.

The civic crown was made of oak leaves (see *d*), and bestowed upon such Roman citizens as had saved the life of one of his fellow citizens, either in battle or assault. This ornament was held in great estimation by the Romans, and was considered a sufficient reward for the highest services. Cicero, the famous Roman orator, received the civic crown for detecting Cataline's conspiracy; and it was afterwards worn by the Roman emperors on solemn occasions. This crown is much used in modern ornaments, particularly for draperies, &c.

The radiated or eastern crown is the form of that worn by the Jewish kings; it had pointed rays proceeding from a circle of gold: see *e*. This is sometimes called the celestial crown, as it was bestowed by the ancients on the great men who, after death, were ranked among the

Plate LXIII.*

HERALDRY.

Fig. 1.

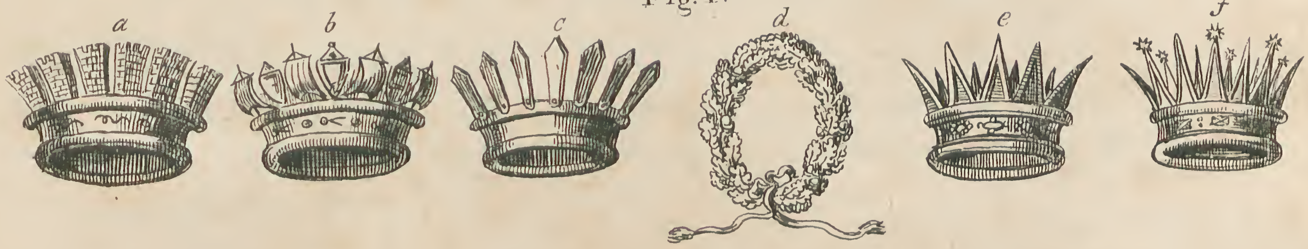


Fig. 2.

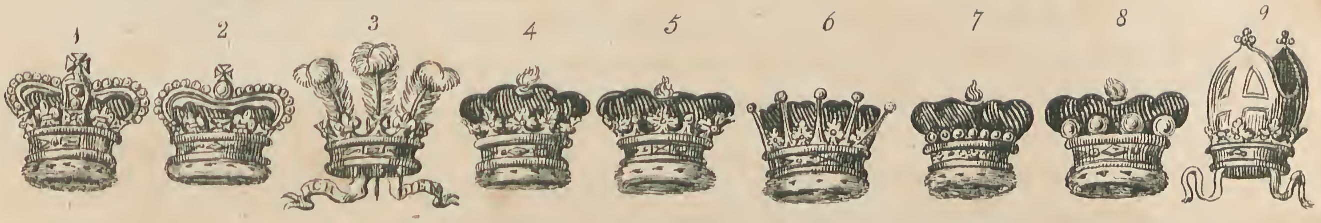


Fig. 3.

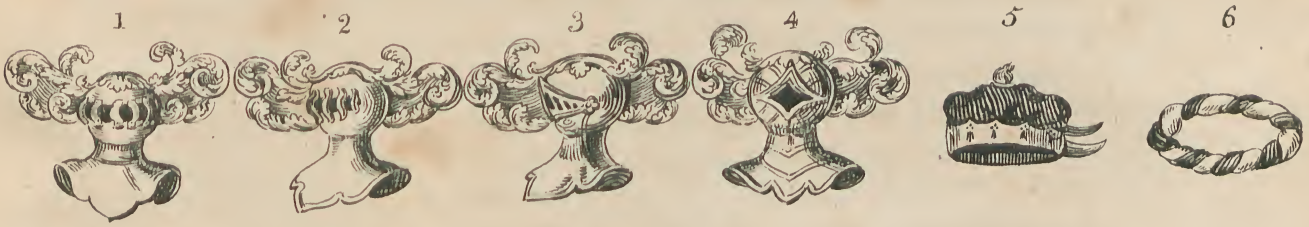
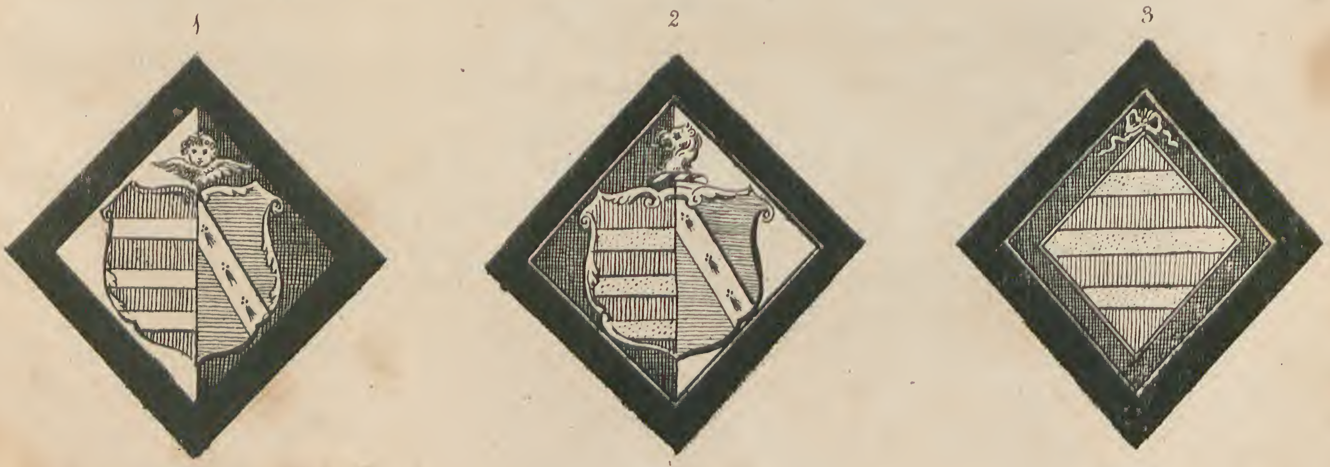


Fig. 4.



gods. The celestial crown is decorated with a star between each of these rays.

The other ancient crowns were formed of grass plants, and branches of trees, much like the civic crown. Crowns are now only used as the insignia of royalty.

The imperial crown is a circle of gold, adorned with precious stones and pearls, heightened with fleurs-de-lis, bordered and seeded with pearls, raised in the form of a cap, parted at the top like a crescent; from the centre of the cap rises an arched fillet, enriched with pearls; above this is an orb of gold, surmounted with a diamond cross.

The crown of the kings of England is a circle of gold, bordered with ermine, enriched with pearls and precious stones, heightened up with four crosses patee, and four large fleurs-de-lis alternately; from these rise four arched diadems, adorned with pearls, which are joined in the centre by an orb, surmounted with a cross. Fig. 2. Plate LXIII*. contains this crown and the coronets of the different degrees of nobility of England. No. 1. is the crown of England. No. 2. the coronet of the Prince of Wales, or eldest son of the King of Great Britain; this was anciently a coronet of gold, set round with crosses, patee, and fleur-de-lis, alternately; to this was added, after the restoration, one arch of gold, bordered with pearls, surmounted with an orb and cross, like the king's crown. The Prince of Wales has another distinguished mark of honour, a coronet of gold, in which is placed a plume of three ostrich feathers, with the motto, *Ich dien;* these words are in the German language, and signify, 'I serve.' This device was assumed by Edward, Prince of Wales, commonly called the Black Prince, after the famous battle of Cressy, in the year 1346, where, having with his own hand killed John, King of Bohemia, who wore a coronet and plume similar to this, the gallant Edward placed it upon his own head as a trophy; and to perpetuate this glorious victory, obtained by the Prince of Wales, it has ever since been acknowledged as their crest. See No. 3. Fig. 2.

A duke's coronet is a circle of gold, bordered with ermine, enriched with precious stones and pearls, and set round with eight large strawberry leaves in gold; the cap is crimson velvet. Fig. 4.

A marquis's coronet is a circle of gold, bordered with ermine, set round with four strawberry leaves and four points, with pearl balls on the points. Fig. 5.

An earl's coronet is a circle of gold, heightened up with eight points or rays, having a large pearl bead on the points; these are placed alternately with as many strawberry leaves, but the pearls are much higher than the leaves. Fig. 6.

A viscount's coronet differs from the preceding ones, as being only a circle of gold, bordered with ermine, with large pearls set close together on the rim, without any limited number. Fig. 7.

A baronet's coronet is formed with six pearls, set at equal distances on a circle of gold. Fig. 8.

A bishop's mitre is seen at Fig. 9.

HELMETS.

The helmet was the defensive armour for the head, and is now placed over a coat of arms as its chief ornament and true mark of gentility. There are several sorts, and according to Porney they are distinguished by the matter they are made of, by their form, and their position. For sovereigns they are made of burnished gold, diapered; those of princes or lords, of silver, figured with gold; those of knights, of steel, adorned with silver; and those of private gentlemen, of polished steel.

The colouring of helmets is seldom attended to by herald painters of this country, but those of other nations observe it strictly.

The forms of the helmet for the king, royal family, and noblemen of Great Britain, are open-faced and grated, and the number of bars serve to distinguish the bearer's quality. The king's helmet has six bars; see Fig. 3. Plate LXIII.* No. 1. No. 2. Dukes' and Marquises', have but five. The grated helmet, 3. with four bars, is common to all degrees of peerage under a marquis. Open-faced helmets, without bars, (No. 4.) denote baronets; and the close helmet is for all esquires and gentlemen.

The position of the helmet is also looked upon as a mark of distinction. The grated helmet in front belongs to sovereign princes, dukes, and marquisses. The grated helmet in profile is common to all degrees of peerage under a duke. The helmet standing direct, without bars, and the leaves a little open, denotes baronets and knights. Lastly, the profile helmet, closed, denotes esquires and gentlemen.

CHAPEAU.

A chapeau is an ancient cap of dignity, formerly worn by dukes, being made of crimson velvet, lined with fur: it is now used in crests for all ranks of peerage. See No. 5. Fig. 3.

A wreath was a kind of roll, made of two skeins of silk, of different colours, twisted together, which ancient knights wore as a head dress when equipped for tournaments. The colours of the wreaths used in heraldry are usually taken from the principal metal or colour used in the coats of arms of the bearer. See No. 6.

CRESTS.

The crest is the highest part of the ornament of a coat of arms; it is called crest from the Latin word *cresta*, which signifies comb or tuft.

Crests were formerly greater marks of honour than coats of arms, because they were only worn by heroes of great valour, or by such as were advanced to some superior military command, in order that they might be better distinguished in an engagement.

The crest is frequently a part either of the supporters or of the charge borne in the escutcheon: thus the crest in the royal achievement of Great Britain is a lion gardant, crowned.

SCROLL.

The scroll is the ornament placed under or over the escutcheon, containing a motto, or short sentence, alluding sometimes to the bearings or the bearer's name, as in the two following instances:—The motto of the Earl of Cholmondley is, "Cassis tutissima virtus," that is, "Virtue is the safest helmet," on account of the helmets in his coat of arms. The motto of Lord Fortesque is, "Forte scutum salus ducum," that is, "A strong shield is the safety of the commanders," alluding to the name of that ancient family.

SUPPORTERS

Are figures standing on the scroll, on each side the escutcheon; they are so called because they seem to support or hold up the shield. They were formerly taken from the animals that are borne on the shields, but are sometimes chosen so that they may bear some allusion to the achievements of the persons whose arms they support.

FUNERAL ACHIEVEMENTS.

These are usually called hatchments, and denote what rank the deceased held while living; and if it is a gentleman's hatchment, whether he was a bachelor, married, or widower, with the like distinctions for ladies.

The hatchments, Plate LXIII*. Fig. 4. represent such as are affixed to the fronts of houses, when any of the nobility or gentry are dead to whom they belong. The arms in this hatchment are those of a private gentleman and his wife, parted per pale. The dexter side, which is gules, three bars *or* for the husband, having the ground without the escutcheon black, denotes the man to be dead; and the ground on the sinister side signifies that the wife is living. In the latter case the crest is omitted, and a cherub's head placed instead, as seen in Fig. 1. which is the same arms, but the colour of the hatchment reversed, supposing the wife to be dead and the husband living.

When a bachelor dies, his arms are depicted, single or quartered, with a crest over them, but never impaled as the two first are. The ground of the hatchment, without the escutcheon, is all black. See Fig. 3.

When a lady dies unmarried, her arms, which are placed in a lozenge, may be single or quartered, as those of a bachelor; but instead of a crest have either a cherub or a knot of ribbon over them. All the ground without the escutcheon is also black.

When a widower dies, his arms are impaled with those of his deceased wife, having a helmet and crest over the shield, and all the ground without the escutcheon black.

When a widow dies, her arms are represented impaled with those of her deceased husband, but enclosed in a lozenge, and instead of a crest, either a cherub or an escalop placed over them.

The herald painter must not suppose that the brief notice here taken of the various parts of coats of arms will be sufficient for him to know, if he directs his mind to herald painting exclusively; but it will enable any painter to avoid committing glaring errors in heraldry, either on canvass or on glass. The rules for hatchments are very simple, and may be very useful to the country painter, who may be furnished with the escutcheon, but may not be acquainted with the proper method of displaying it on the hatchment.

The figures and colours in Plate LV. will now be thoroughly understood by referring to the preceding instructions, and it only remains to state how they are to be produced on the glass. The shield must be traced in the same way that the ornaments were produced, and the outline of the whole strongly marked with No. 16.; it will then be advisable to float on all the yellow stain that is required first, viz. the cheveron and crescents in the first quarter, and the band round the fluer-de-lis in the second; likewise the green ground, which must be stained with yellow first, and the balls beneath the ermine on the red ground. The cross in the fourth quarter may likewise be stained all over with the lemon yellow, as it will add greatly to the brilliancy of the red when that stain comes to be applied. When the yellow stain is quite dry, the blue, No. 8. may be painted over the remainder of the first and fourth quarters, also over the shells in the third. The crimson colour, No. 6. may then be applied to the fluer-de-lis, and the bend in the third quarter. The shield is now ready for the first burning.

Commence the second process by floating on the orange stain, No. 1. on the sides of the crescents that are in shade, and also on the dark sides of the balls in the second quarter. The red stain, No. 2. must then be floated over the cross in the fourth quarter; the black in the fess in the second quarter, and also the ermine on the white ground, are produced by No. 19.; the white is painted on the reverse side with No. 17.; the whole is shaded on the reverse side with No. 16.; and the shield, when burnt, is completed.

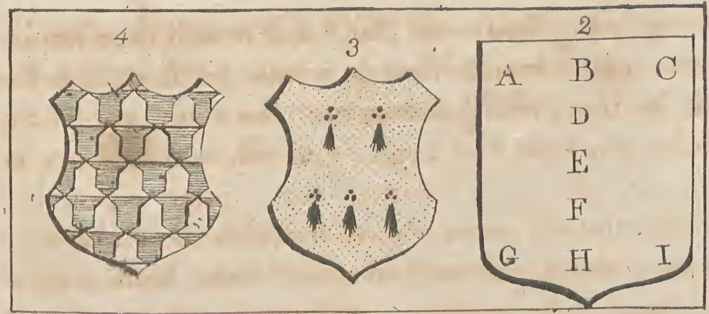
ROYAL ARMS OF ENGLAND.

Plate LXI. is an escutcheon, containing the arms of the King of England; and as the emblazonment in heraldic terms, according to rank, has not before been inserted, and will possibly be useful in directing the attention of the student to the true heraldic terms, according to the highest order for colours or metals by the names of the planets, which he will frequently meet with in works on heraldry, it is introduced here.

Arms quarterly, three lions passant gardant in pale sol (the royal arms of England); the second quarter, sol, a lion rampant, within a double tressure, flowery and counter-flowery (the royal arms of Scotland); the third quarter is Jupiter, a harp, sol, stringed luna (the ensign of

Plate LXI.*

HERALD PAINTING.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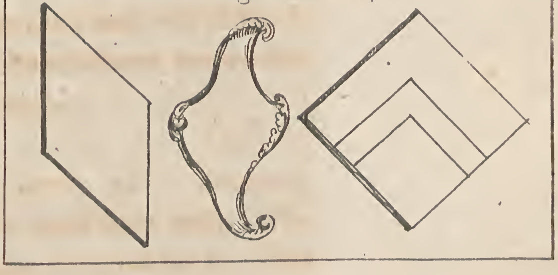


Fig. 1

Fig. 9.

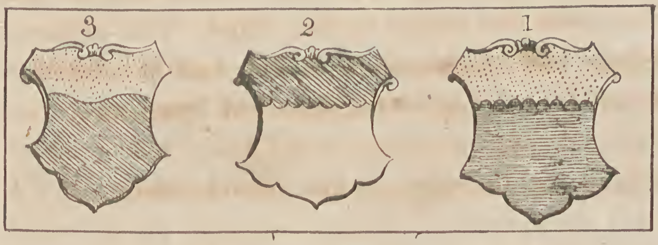


Fig 10

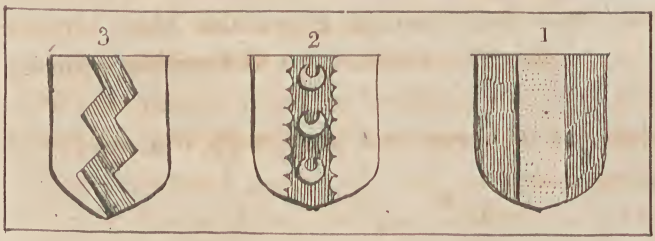


Fig 11

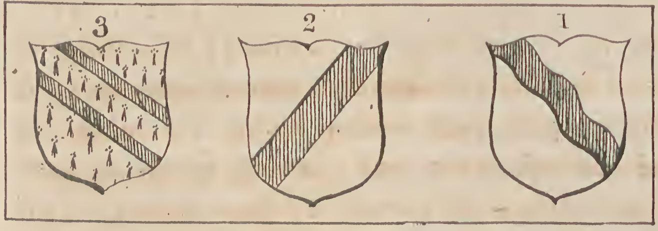


Fig 12.

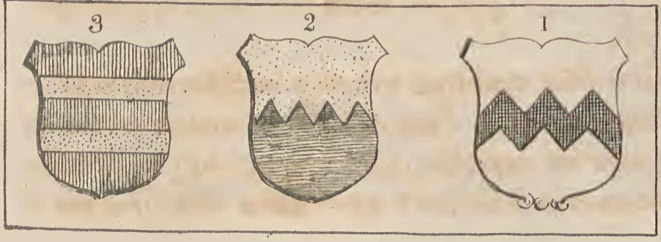


Fig. 7

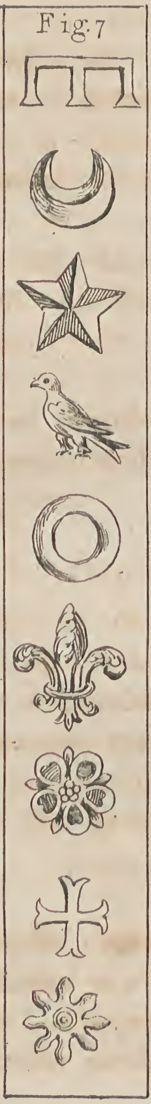


Fig 5

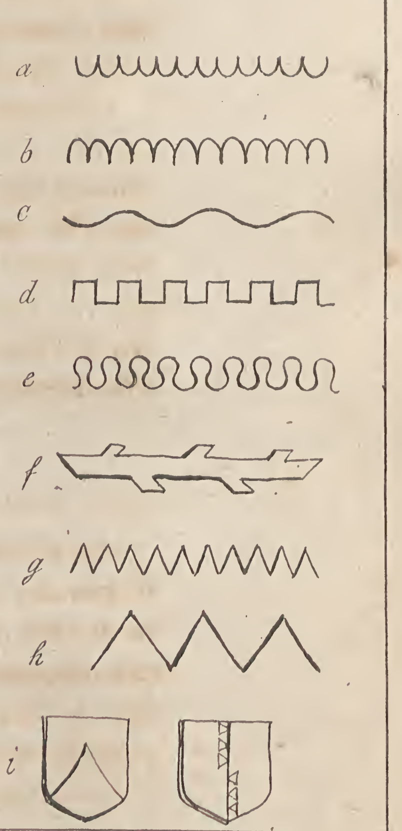


Fig 8

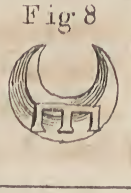
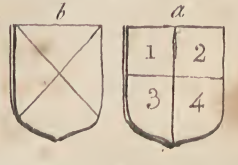


Fig. 6.



Ireland); the fourth quarter is three lions passant gardant, in pale sol. The shield in the centre is Mars, two lions passant gardant, in pale sol (the arms of Brunswick), impaled with sol, semé of hearts proper; a lion rampant, Jupiter (for Lunenburgh), with grafted in bass Mars; a horse current luna (for ancient Saxony or Hanover), and in an inescutcheon sur-tout Mars; the diadem of Charlemagne, sol, surmounted with an imperial crown. The whole within a garter, inscribed with the motto, "Honi soit qui mal y pense," as sovereign of the noble order of the garter.

CREST.

On a helmet, full-faced, grated, and surmounted with a royal crown, a lion passant gardant sol, crowned with the same. The mantlings of cloth of gold, double ermined.

SUPPORTERS.

On the dexter side a lion rampant gardant, sol, crowned as the crest; on the sinister side a unicorn luna, horned, maned, and hoofed sol; gorged with a collar, surmounted with crosses, patee, and fluer-de-lis, with a chain affixed thereto, passing over the back and hind legs; both supporters standing on a scroll, inscribed with the motto, "Dieu et mon droit," from which issues the three royal badges of his majesty's chief dominions, viz. on the dexter side a rose and shamrock, for England and Ireland; and on the sinister side a thistle for Scotland.

Plate LXI. contains the shield only, without garter, crest, supporters, or badges. It makes a most brilliant shield for glass, and though full, is not very difficult to execute. The whole must be drawn very carefully with No. 16. as directed in the preceding subjects.

The lemon yellow stain should be applied first to the three lions in the first quarter, over the whole of the second quarter, as the red will shew out more brilliantly upon it, and the border and flowers are too small to be stained with two stains at the same time. The harp in the third quarter is likewise gold. The fourth quarter is exactly like the first. The lions may be stained with lemon yellow, and when dry, the red stain floated over the field upon which they are placed. The yellow stain, No. 3. must be floated over the imperial crown in the centre, and over the lions contained in the first quarter, in short over every part that appears in gold. The azure may be painted on the third with the finest blue, No. 7. The white horse in the small shield with No. 17. The piece is then ready for the first burning.

The second process is commenced by shading the lions in the first and fourth quarters with the light brown shade, No. 23. taking care to finish them with the colour nearly as they are intended to appear when burnt, as the fire will not make much alteration in either of the opaque shading colours. The lion in the second quarter, and the lines round the borders that are to appear red, should be drawn very firmly with the shading colour, No. 16. ground in amber oil, and suffered to get quite dry before the red stain is applied. The shading on the lion should be on the reverse side, or it will be disturbed by the stain. When the outline is properly formed, the stain, No. 2. should be floated on with a small brush, so that it may not mix and flow over the yellow. The same means should be used with the red in the crown in the centre, and the two lions in the small shield. The hearts round the black lion should be stained with the same colour, also the ground for the white horse. When the stain is dry every part that is to appear yellow must be finished to the height required, as it will be of importance to finish the whole in twice burning, if possible.

It will be seen from the above directions that it is not so much the colouring as the drawing and disposing of the royal arms, that renders them so beautiful when finished, as the preponderating stains are the red and yellow, which are the colours most easily produced.

It will be advisable for the student executing this shield for practice, to divide it into four pieces, and omit the small shield in the centre. Each quarter can then be drawn in large, and joined by leading. It will be equally useful as an ornament for a church window or hall, as it will contain the arms of the United Kingdoms, omitting only his Majesty's German dominions. The latter will be found difficult for a beginner to execute, from the small size and variety of the figures.

Having been so minute in giving directions on all the preceding subjects, there will be little necessity for dwelling on the remainder. The glass painter usually copies the cartoons or drawings prepared for him by the artist, and has generally but little to do in designing the subjects he paints on the glass: but as, in some instances, he will be required to furnish designs, he should, in the first place consider what subject is most applicable to the building he is about to embellish.

In Catholic countries the legends of the saints to whom the churches and other buildings are dedicated, furnish a variety of subjects, which could not be introduced into our buildings erected for divine worship; the painter is therefore confined to the scenes exhibited during the life of Christ and the apostles.

In churches dedicated to the Virgin Mary, if the centre light of the window is sufficiently large, the nativity forms a good subject. This has been very successfully executed in glass, in the ante-chapel of New College, Oxford, by Jervase, from designs by Sir Joshua Reynolds: it is likewise painted in the chapel of Queen's College, and many other places. If the window has a mullion running upon the centre, the Annunciation forms an excellent subject; the virgin filling one light, and the angel the other.

In windows where there are three compartments, the Transfiguration of Christ, from Raphael, is an excellent subject, and easy to execute. The Resurrection and Ascension are equally good. The crucifixion is only suitable to a large window, where a number of figures can be introduced. The single figure of Christ writhing in agony, or patiently enduring his sufferings, is too horrible for representation, unless the mind can be diverted by surrounding objects from dwelling entirely on the single figure; and in painting on glass, as in other paintings, the more pleasing the subject the more the painting is likely to be admired.

In the lives of the apostles, the cartoons of Raphael furnish an inexhaustible supply of figures in almost every situation. The Conversion of St. Paul, by Sir James Thornhill, the Last Supper, by West, and many others, are open to the designer on glass, for sacred edifices.

In some cases the windows are so divided by mullions that it is impossible to produce any group of figures. This happens where a thick mullion runs up the centre, and is divided by a heavy transom. In this case, upright figures, tastefully disposed in niches, have a beautiful effect; care being taken that the niches either have no particular architectural character, or that they all assimilate with the general style of the building. The latter is the most pleasing, and of course easy to execute.

The glass painter will find it much more difficult to produce small figures than large ones, nor are they so effective when produced, if viewed at some distance. Large figures do not require the same delicacy of touch, and, if painted in a number of pieces, may be improved or altered at pleasure, without any great difficulty or expense.

The tracery over the mullions in florid Gothic windows, should be filled with glass ornamented with foliage. If rosettes are introduced, they should have the same character, and not be stars or angular figures. By a little attention to the leading, even plain coloured glass may be made to produce a beautiful effect both in the lights and headings of windows.

Plate LIX. contains outlines of niches in almost every style of Gothic architecture.

In buildings devoted to civil purposes the subjects are innumerable: the principal care is to select those that are easiest to execute, and that will not exclude much light, as it is only in churches that the dim religious light is appropriate. In other buildings light and elegance is required to be combined, where cheerfulness is to be preferred to solemnity. In making designs for the various buildings that require the decoration of painted glass, the painter must rank very high as an artist, if he does not find the productions of the ancient and modern masters answer his purpose better than any new design of his own.

CHAPTER VII.

COLOURS AND STAINS, FROM THE OLD MASTERS.

ALL the colours and stains, with the directions for their use, given in the preceding pages, are from actual practice, nothing having been introduced upon the authority of other persons, however eminent in their profession, till it had been fairly and repeatedly tried; but as some of the ancient masters have left directions for preparing colours used by them in the production of the windows, that justly excite the universal admiration of all that behold them, it would be leaving this work very incomplete if they were not inserted, particularly as the books containing them are very scarce and expensive; and as hints may possibly be gleaned from them by the intelligent practitioner, that may lead to great improvements in the composition of stains and colours. It must be confessed, that some of the recipes are so contradictory, and composed of such opposite materials, that it in some measure justifies the opinion held by many persons, that they purposely made them obscure to deter others from engaging in the profession. Whatever may have been the cause, they are certainly no fit guide for the young student; but when he has attained a certain degree of perfection in the art, he may carry his studies further by their perusal.

COLOURS FOR GLASS,

FROM DIRK AND WALTER CRABETH.

The church of Gouda, in Holland, having been destroyed by fire, a new one was erected on its site, which far surpassed the old church both in size and magnificence. The Dutch are called a cold phlegmatic people; but when any subject is of sufficient interest to rouse their attention, they generally carry their exertions to extremes, and load their public buildings with an excess of ornaments. This observation has been made by more than one traveller, who has witnessed the immensity of human labour and talent bestowed on the church of Gouda, particularly in its painted windows, which are unequalled for magnitude and elaborate workmanship. The funds for the execution of these windows were supplied by opulent individuals and various public bodies, and artists on glass were invited from every country of Europe.

Among the most celebrated for talent and industry were two brothers, Dirk and Walter Crabeth. They worked at different windows, and vied with each other in producing the most elegant specimens of the art. Walter, or Wouter as he is called by the Dutch, is allowed to be superior to his brother in drawing and brilliancy of colouring. Dirk was remarkable for bold effect and strength of light and shade. They were so jealous of each other, and so tenacious of having their secrets for producing colours discovered, that one brother would never suffer the other to see him at work; in other respects they lived in the closest brotherly friendship. After their death Walter's mode of preparing colours was published by his pupil and workmen; but from the mixture of several, it must be supposed they were confused by Crabeth himself, in order to disguise them, or that they have been incorrectly transcribed. Some of them, the glass painter will observe, are the materials and quantities now in use.

GOLD COLOUR.

Silver	3 ounces.
Antimony	1 ounce.

Melt them in a crucible, and beat the mass to powder, and grind it on a copper plate; add to it yellow ochre or brickdust pounded, thirty ounces: grind them well together with water.

PURPLE.

Fine white sand	12 ounces.
Minium	3 ditto.
Zaffer, (very pure)	2 ditto.

The above beat in a mortar, and ground on porphyry. This is not only given in Crabeth, but by Neri: it is difficult to conceive how a purple could be produced from these materials.

BLUE.

Smalt	1 lb.
Sal Nitre	1 do.

Mix and grind together.

RED.

Red chalk	4 ounces.
Jet	3 ditto.
Gum arabic.	1 ditto.

Let them be well ground on a copper plate, with rain water; it must be ground very thick. Let it stand three days to dry in an earthen dish, grind it again on the copper plate, and it is fit for use. This would produce a dark flesh tint, inclining to a red, but not better than the pencil colour, No. 16.

GREEN.

Take any quantity of verdigris required, and grind it well with turpentine, and put it into a vessel, taking care to warm it at the fire when required for use.

BLACK.

Scales of iron	1 ounce.
Ditto of copper	1 ditto.
Jet	½ ditto.

Mix them together, and grind to power on an iron plate.

WHITE.

Jet	2 ounces.
White flint	1 ditto.

Grind them finely together.

DARK PURPLE RED.

Minium	1 lb.
Brown stone	1 ditto.
White flint	5 ditto.
Sal nitre	2 ditto.

Grind them well together after calcination.

SEA GREEN.

Minium	1 lb.
Scales of copper	1 ditto.
Flint glass	4 ditto.

Grind them together, and divide them in three parts, and add to them as much sal nitre as one of those parts; melt the whole in a crucible, in a strong fire. When cold pound, and afterwards grind on a copper plate.

ORANGE YELLOW.

Antimony	3 ounces.
Leaf silver	1 ditto.

Pound the antimony, and grind it on a copper plate, with the leaf silver, taking care that one leaf is properly ground down before another is applied. When the whole is mixed, divide it into ten parts, and take as much leaf gold as one of the parts, and grind leaf by leaf; and it will, when burnt, form a fine orange, nearly approaching to red.

RED.

Sanguis draconis (dragon's blood) in powder put in rectified spirits of vitriol, cover it close till dissolved, then strain it through a cloth to exclude the dross.

FROM RANDAL HOLME AND GERARD WANE.

GOLD COLOUR.

Take leaf silver and lay it smooth on the glass by breathing on it. When burnt the silver will penetrate the glass, and it will appear a beautiful gold colour.

GREEN.

Red lead	1 part.
Scales of copper	1 ditto.
Flint glass	5 ditto.

Divide these, when properly mixed together, into three parts. To these add sal nitre as much as one of those parts, and melt all together.

YELLOW.

Spanish brown	10 parts.
Leaf silver	1 ditto.
Antimony	½ ditto.

Put all into a crucible, and afterwards grind for use.

CARNATION.

Red chalk	2 parts.
Jet	1 ditto.
Iron scales	1 ditto.
Litharge of silver	1 ditto.
Gum arabic	1 ditto.

Dissolve in water, grind all together half an hour, as stiff as you can; then put it in a glass, and stir it well. Let it settle fourteen days.

BLACK.

Iron scales	1 part.
Copper scales	1 ditto.
Jet	½ ditto.

Pound and grind them together.

A NOBLE RED OR GREEN COLOUR.

Leaves of gold, or calx of sol, by calcination in aqua regia; put either of them on plates of glass, and heat them gradually red hot together, so will the glass be tinged of a noble red colour, or else of a florid green; which colours result from the purity or impurity of the gold.

BLUE.

Provide the clearest red lead you can get, beat it to powder in a brazen mortar: take goldsmith's enamel of a fine blue colour; grind each by itself. Then take lead two parts, and enamel one part, and grind them together for use.

RED.

Litharge of silver	1 part.
Scales of iron	1 ditto.
Rocaille	3 ditto.
Feretto of Spain	1 ditto.
Blood stone, beaten to powder in an iron mortar	3 ditto.
Gum arabic pounded in the same mortar to take off what is left of the blood stone . .	1 ditto.

Grind the three first things on a brass plate, for half an hour; then add the rest, which are to be continually ground, that the blood stone may not be spoiled. While grinding, add water by little and little, but only so much that the mullers may rub easily, and the mass be in a good temper or thickness for painting. This done, put all into a wine glass, and drop on it, drop by drop, so much water as may make it of the thickness of a raw yelk of an egg, or somewhat thinner: cover the glass, and let it settle for three days, and then decant the finest of the colours which arise at the top of the glass into another vessel, without disturbing the sediment; let it settle again for three days, and decant the finest colours again. This must be put in a gentle heat to dry to powder, when it will be fit for use on the delicate tint of faces, lips, and flesh of the human figure. That which remains at the bottom of the glass, being thicker, will do for shading the above, and likewise for red drapery, &c.

WHITE.

Jet	2 parts.
White flint glass, ground fine . .	1 ditto.

Mix and grind them together.

COLOURS FROM M. FELIBIEN.

BLACK.

Scales of iron	1 part.
Jet	1 ditto.
Manganese	1 ditto.
Flux, No. 1	3 ditto.

Fuse in crucible and grind for use.

CARNATION.

Red chalk	8 parts.
Jet	12 ditto.
Gum arabic	6 ditto.
Flux	4 ditto.

GOLD COLOUR.

Take leaf silver, and place the leaves smoothly on the glass; burn without any flux, and the glass will be tinged a delicate gold or yellow colour.

A FINE RED OR GREEN COLOUR.

Take leaves or calx of gold, made by calcination or aqua regia; put either of them on plates of glass, and heat them gradually red hot together; the glass will be tinged of a noble red colour, or else of a florid green; which variety of colour results from the purity or impurity of the gold.

YELLOW.

This colour requires a more costly preparation than the preceding, because it cannot well be done without a tenth part of prepared silver: it is made as follows:—Take fine silver in leaves or plates, stratify them in a crucible with powder of sulphur, the first and last layer being of the powder, and so calcine them in a furnace. This done, cast it out, as soon as all the sulphur is consumed, into an earthen basin of water: afterwards pound it into a stone mortar, until it is fit for the marble, and so grind it with some of the water, wherein it was cooled, for six hours. Then add nine times its weight in red ochre, and grind them together for a full hour; the mixture will then be fit to paint upon the glass.

BLUE.

The whole secret of this preparation depends on the goodness of the ingredients, their calcination, and the excellence of the crucible.

Zaffer	2 ounces.
Ultra marine	1 ditto.
Minium	2 ditto.
Very fine white sand	8 ditto.

Put all these into a bell-metal mortar, and pound them very fine; put them into a crucible, covered, and luted over a quick fire for an hour; then draw out the crucible, and pound them again as before. This done, add a fourth of its weight in saltpetre, powdered: having mixed all well together, return them into the crucible, covered and luted as before, and keep them, with a good heat in the furnace, for at least two hours. The crucible being taken off, and cooled a second time, grind the mass as before; then put it into a crucible again, with a sixth part of saltpetre, and let it remain on the fire for three hours. Take off the crucible, and pour out the matter into a stone mortar, pound it very fine, and it will be an excellent transparent blue, always fit for use.

It is convenient to have strong crucibles for this calcination, because it remains so considerable a time in the fire, and they must be luted with an extraordinary lute, adding powder of borax to the mass under fusion, to assist its vitrification, which was omitted in the preceding directions: but the greatest thing to be attended to is baking the crucible afterwards in a small fire, to cement the pores, and make the earth of which it is made as compact as glass. This will be much improved if a little salt is thrown on it as it comes out of the fire: this would glaze it and render it perfectly hard under the strongest heat.

RED.

Feretto of Spain	1 part.
Scales of iron	1 ditto.
Litharge of silver	4 ditto.
Rocaille	4 ditto.
Bloodstone	3 ditto.
Gum arabic	1 ditto.

Grind the first four articles for half an hour on a copper plate; in the mean time cause the bloodstone to be pounded, and add it to the rest: then pound the gum arabic in the same manner to take off the remains of the bloodstone, and so add it to the rest, grinding it continually lest the bloodstone be spoiled.

BLACK.

Grind scales of iron, from the smith's anvil, for three hours, on the copper plate; add to this one-third of the same weight of rocaille, with a little calx of copper to hinder the iron from turning red in the fire: grind the whole to the finest powder, and keep it ready for use.

There are many ingredients mentioned in the old masters, which the modern improvements in chemistry supply more easily, or are called by other names; a few will be enumerated and explained, so that the student may understand the meaning of any ancient writer on this subject.

Rocaille is a mixture of fine white sand and minium, run together in a crucible in the proportion of one pound of sand to three pounds of minium. When vitrified, it does not come out of the crucible in a mass, but in small yellow grains. These are very soft, and are useful in forming common yellow beads; it was formerly used as a flux in colouring glass, but as it contained so much lead it was injurious to many colours, and is now disused.

Rochetta was the name formerly given to all ashes or polverine, used in the formation of glass.

Ferretti of Spain obtained this name from the natural rust or iron dust that was brought in great quantities from the mines of Feratto. Neri and Merrit consider it of great use in tinging glass in the mass; and it is used in forming artificial gems called paste. It can be produced from iron or steel, by means of sulphur; but as it is now disused in the art of staining glass, it would be occupying space to no purpose to describe the method of producing it.

Sanguis draconis, or dragon's blood, was formerly held in great esteem by glass painters, and it is found in the composition of most of the red tints, by old masters. It is a gum that drops from trees found in the East Indies. The use of this vegetable colour is now exploded; as it is found that no colours but those produced from mineral substances will stand the fire: all others evaporate during vitrification.

Sandix is a kind of minium or rather red masticot, made of calcined cerass. The use of the real minium, or red lead, is found to answer much better, both as a colour and flux, and the name of sandix is scarcely known at the present time.

The reader will find, on perusing the foregoing recipes from the old masters (which might be multiplied till they would fill a large volume), that the directions given in the first part are founded on some of them. Those and many more have been tried and combined in various ways, to produce different colours; but those given before can alone be relied on for use. Among all the experiments that have been tried by glass painters, there is none that has hitherto so completely perplexed them as the production of the ancient ruby stains, which is so abundant in old glass, and consequently one would suppose could not be a very expensive or difficult colour. It must be confessed, that at present we have nothing that comes nearer to it than the red stain No. 2. In preparing that the author of this work has sometimes ground with the silver and antimony, a few leaves of gold; and, in some cases, the colour has appeared more brilliant.

Neri, an Italian, who wrote a treatise on the art of making glass, which was translated into English by Dr. Merrit in the year 1662, gives the following as a certain method of producing the ruby stain:—"Calcine gold in aqua regia; pour water upon the gold five or six times. Then put the powder of gold in an earthen crucible to calcine in the furnace till it becomes a red powder, which it will do in many days, and then add this powder, a little at a time, to finely powdered flint glass, which has been cast into water three or four times. This ground together, and painted on the glass, will produce the ruby, as by experience is found."

The above appears very probable; but it requires the tin to separate the gold from the aqua regia, and then it becomes purple, as seen in No. 5. or, if a small quantity of the gold is washed from the aqua regia, it is very difficult to get it to become a red powder, by calcination; it has been tried in every way without success. The gold, after being calcined and ground up with the crystal flint glass, has produced a reddish green, but by no means of a transparent colour. If any red has been produced, it has been in small spots.

Boyle, in one of his letters on the subject of penetrating glass by metallic colours, relates some experiments tried by himself to obtain the ruby, and relates an anecdote of a person of his acquaintance, who, for some purpose, wished to make a solution of gold and mercury. He kept them in a state of fusion for some time, in a glass retort, but at length his retort broke, with a tremendous explosion; he brought some of the pieces, which Mr. Boyle declares was the finest ruby he ever beheld.

It is rather a dangerous experiment to try to precipitate gold and quicksilver. It is done by dropping into it a solution of salt of tartar; but the powder produced is liable to explode when exposed to even a moderate heat; and the experiment should be tried only by adepts in chemistry, who have proper apparatus. The sole reason why the above experiments are inserted, is the hope that they will attract the eye of some scientific chemist, and afford a clue to the attainment of the ruby stain.

Most of the enamel colours will answer for painting on glass. Thus the practitioner, who requires very fine greens, blues, or pinks, may purchase beads of those colours from the shops, and use them with a little flux, No. 1. without fear of spoiling his work. The remains of the blue glass, after the metal is cast, is very useful in many cases for making blues and greens, and can be purchased at any coloured glass works. The most useful enamel colours for glass, as used by the old masters, are so obscured by technical terms, that even the translations of ancient foreign artists into English by their contemporaries, require to be again translated to be understood by most persons in the present day. The following will be found to correspond with the fluxes given in this work, and will no doubt be of essential service to glass painters.

TRANSPARENT SCARLET OR CRIMSON COLOUR.

Flux, No. 2	6 parts.
The precipitate of gold with tin . .	1 ditto.

Flux them together with a strong fire, till the whole appears a transparent deep red glass; then pour out the matter on an iron plate, and levigate it well, when it will be fit for use. This preparation will answer the end of lake in any other kind of painting, and will appear equally brilliant on enamel or glass. A greater quantity of the gold precipitate may be added, where a stronger colour is required. The composition must, in that case, be continued longer in a state of fusion. The colour may be greatly strengthened, that is made darker, if the preparation is mixed after it has been ground with a sixth part more of gold precipitate used without a second fluxing.

A CHEAP FLESH TINT.

Flux, No. 1	2 parts.
Scarlet ochre	1 ditto.

Mix them well together, and fuse in a crucible, but do not keep the preparation too long in a state of fusion.

A SKY BLUE.

Flux, No. 3	5 parts.
Copper calcined to a purple	1 ditto.
Zaffer	1 ditto.

Mix and flux them well together, and then levigate with the mixture of calx of antimony or tin.

A BRIGHT TRANSPARENT GREEN.

Flux, No. 2	6 parts.
Calcined silver	2 ditto.
Antimony	½ ditto.
Copper, precipitated by alkaline salt	1 ditto.
Salt	1 ditto.

Mix and flux in a crucible, and afterwards grind for use. This will be a fine deep green; if it inclines too much to yellow, add more copper.

A DEEP TRANSPARENT BLUE.

Flux, No. 4	4 parts.
Zaffer	1 ditto.

Mix and fuse them in a strong fire till the whole mass is perfectly transparent; but if the quantity of flux is not sufficient to vitrify the zaffer, add a small proportion of borax. When the vitrification of the whole is perfect, pour out the composition, and levigate it for use. This will produce a fine transparent blue, and being extremely deep, will make very strong shades, and give the appearance of black if laid on nearly opaque.

BLACK.

Flux, No. 1	6 parts.
Zaffer	1 ditto.
Glass of antimony	1 ditto.
Scarlet ochre	¼ ditto.
Magnesia	¼ ditto.

Mix and fuse them till the matter becomes a clear black, of the deepest cast.

FINE YELLOW FOR ENAMEL.

Flux, No. 2	3 parts.
Refined Orpiment	1 part.

Mix them together, and fuse in a crucible, and afterwards grind for use. This composition is extremely tender, and must have no more fire than will just make the ingredients flux together. The yellow may be made much warmer by adding a little antimony.

A BEAUTIFUL SEMI-TRANSPARENT PURPLE.

Flux, No. 2	8 parts.
Gold from tin	1 ditto.
Zaffer	1 ditto.
Ultramarine	1 ditto.

The above must be finely ground together for use.

A VERY BRIGHT BLUE.

Flux, No. 1	6 parts.
Fine ultramarine	1 ditto.

This mixture must be kept in fusion till the ultramarine is perfectly vitrified, and the whole become transparent. If the body of colour is not sufficient, more ultramarine may be added; but in order to spare it, as the colour is so very expensive, a small proportion of zaffer, fluxed with six or eight times its weight in borax, may be added; which, if the zaffer is of the best quality, will make the ultramarine appear much darker, without impairing its brightness.

A CHEAP CRIMSON FOR DRAPERIES.

Flux, No. 1	4 parts.
Magnesia	½ ditto.

Fuse them till the whole mass becomes transparent, then add to them one part of copper calcined to redness, and paint with the composition. Where the crimson is required to be very transparent, the calcined copper should be vitrified with the other ingredients, but great care must be used in taking the composition from the fire as soon as the vitrification is perfected. This red is very tender, and requires only as much heat as will incorporate the substances together; but if it is found too soft for the tone of the fluxes of the colours, instead of using flux, flint glass and a little borax may be employed for mixing with the magnesia. The management of this colour is so difficult, that on small pieces it will be better to use the crimson of gold; but in large works, where this colour can be laid on in a strong body, it becomes very serviceable.

CHAPTER VIII.

THE METHOD OF ANNEALING OR VITRIFYING THE STAINS AND COLOURS ON GLASS.

When the stains and colours are quite dry the last process is burning the glass, in order to vitrify the flux and metallic colours; as all the previous labour bestowed on the glass will be lost, unless the burning is successfully executed. It will be necessary to use the greatest care even in what at first sight may appear the most trifling direction, in order to ensure perfection.

By referring to page 216 the larger kiln and muffle for burning the glass will be found accurately described; and the ground plan, elevation, and admeasurement, are given in Plate LXIV. In Fig. 4. it will be seen that the muffle is a square iron pot, filled with shelves, standing one upon the other, and kept apart by legs at each corner, so that the glass may lie between them, as seen in Fig. 3. The muffle can at any time be taken out of the kiln; but as it would be too heavy for any three persons to lift without endangering the glass when all the shelves are within it, it is better to let it always remain, taking care to remove the shelves regularly, so that the smallest may always come to hand first, when they are to be placed on the kiln, and so on to the largest. If the glass intended to be burnt at one time is sufficient to fill the muffle, commence placing it on the smallest shelf first, but if there are more shelves than are required, then place it on the shelf next to the smallest, as the fire will not act upon it so fiercely.

After laying the glass evenly on a board, take the smallest shelf, and having a quantity of pounded firestone or whiting always ready, put some of it in a tolerably fine horse-hair sieve, and sift it evenly over the iron shelf till the firestone or whiting is about a quarter of an inch in depth; then take a piece of flat wood, feather-edged, and pass it evenly over the powdered whiting, so that the whole surface of the shelf may be equally covered, and a smooth bed of whiting formed for the glass to lie on. The use of the layer of firestone or whiting is to prevent the metallic colours coming immediately in contact with the iron plate, while in a state of vitrification, which, in some instances, would have an injurious tendency: it likewise fills up any unevenness of surface there may be in the shelf, and thus prevents the glass from warping. But its great use is, that it conveys the heat to and from the glass gradually, and prevents its snapping, to which it is liable if exposed to too great heat, or if suddenly exposed to the cold air.

The whiting being properly disposed, take those pieces of glass from the board that will lie most conveniently on the shelves, and place them on the whiting as lightly as possible, so that the surface may not be disturbed. These should not touch each other, nor should they be placed within half an inch of the edge of the shelf either way, so that they may not be liable to be touched with the hand, or displaced by touching the sides of the muffle, while the shelf is being placed within it. Before the shelf is placed in the muffle, take care that it is free from any dirt or ashes, particularly any pieces of cinders that may come under the leg of the shelf, and make it stand unevenly, as that of course would affect all the other shelves that are placed upon it.

When the first shelf is properly filled with glass, place it carefully in the muffle, and then proceed in the same way with the second, and so on till the whole is filled, the largest pieces of glass being reserved for the largest shelves. When all the shelves are placed in the muffle the lid is put over it, and the fire may be applied by placing wood, charcoal, and coke on the top of the muffle, taking care to draw the stoppers a little way out of the air flues, or the fire will not burn.

When the coke and charcoal get hot, they will fall down on all sides of the muffle; and if the fire at the top is plentifully supplied, the muffle will in a short time become completely enveloped in fire, which can be made to burn dull or brisk, according as the air is allowed to act upon it, through the flues. When the fire is burning briskly on all sides of the kiln, if it is kept plentifully supplied for about an hour and a half, the muffle, and all within it, will have become red hot: this may be ascertained by looking into the muffle through the valve in the front; the state of the glass in the centre of the muffle will then be seen: if it appears of a dull red heat there, the burner may be sure that it is in the same state on all the other shelves. The air flues may be removed on all sides, and the fire be allowed to act as briskly as possible. In a few minutes the burner will find, by looking through the valve again, that the whole will appear of a uniform white heat, and the surface of the glass quite smooth. No more fuel need be added to the fire, but that which is already on the top should be suffered to consume itself; the hot embers will fall down on all sides: but if the air stoppers are removed, it will soon burn out, and every part of the kiln will be of an equal heat. When the fire is consumed, the muffle must be allowed to cool gradually. The best time to burn is in the evening, taking care that the fire has spent itself before the kiln is left; and in the morning the whole will be quite cold, and the glass may be removed from the muffle without danger of its breaking by being exposed to the cold air.

The shelves should be placed regularly, as they are taken out, and the glass properly disposed on a board, particularly if parts of figures, as they will confuse the painter if mixed. The red and yellow stains should be carefully brushed off the glass with a brush about as hard as a shining brush used in cleaning shoes, and preserved, as they are useful to mix with the common orange stain. The firestone or whiting should likewise be taken off the shelves, and put by in a pan, as the same whiting, passed through the sieve, will do to burn a number of times.

This muffle will contain a large quantity of glass, and will require a proportionate quantity of fuel to bring it to the proper degree of heat:

but any glazier burning glass for his own use, or merely for practice, will find it burn equally well in the small kiln, described at page 218: the figure of which is given in Plate LXV. In this kiln the fire is supplied from the bottom through an aperture like the fire-place of a common copper for washing or brewing.

The fire is made on the grating, and the flames play round the muffle, as seen in Fig. 2. Plate LXV. The form of the muffle, with shelves placed one upon the other, is seen in Fig. 4. Coals may be used in this small kiln, with wood and coke, as the fire does not act so close to the muffle as in the large kiln, and the sulphur contained in the coals is not so likely to injure the glass; though even with this kiln it would be the safest plan to burn with coke, charcoal, and wood, as the sulphur will sometimes act on the glass, notwithstanding every precaution.

The shelves of this muffle are all the same size, so that it is of no consequence which is placed first. As this kiln is so small, a very great heat cannot be obtained to act with force upon a large body; four or five shelves is the most, therefore, that should be placed within a muffle constructed on this plan. The shelves will require to be bedded with sifted firestone or whiting, as directed for the larger kiln, and the glass placed upon them in the same way. The time this kiln will take heating will, in a great measure, depend on the number of shelves introduced; but the state of the glass may be easily ascertained by looking through the valve and turning the handle seen at Fig. 1. Plate LXV. When it appears of a fine white heat, and perfectly smooth, the fire may be suffered to exhaust itself, and the glass may be removed from the kiln in five or six hours, but not without it is sufficiently cool to bear the common coldness of the air, or it will certainly break, and the whole work be destroyed. The same method is used both in the first and second burnings.

Some of the old writers give tedious descriptions of the various degrees of heat to be applied, according to the nature or hardness of the flux; but in the modern method the flux is formed to accommodate itself to the fire, and this course has been pursued in all the foregoing directions for mixing and applying the colours and stains.

The small air furnace, described in page 219, will be found of the greatest service to the glass painter for the preparation of the flux and colours. In using it nothing is required but to place the crucible, well covered down, upon the fire-bricks, making a fire all round it with coke and charcoal: it will be easily seen when the substance in the crucible is in a state of fusion, by taking off the top of it with the tongs, No. 4. Plate LXV*. The bent tongs are used for taking the crucible out of the fire.

The glass painter will observe a small ledge round the top of the furnace marked *d. d.* in Fig. 2. It will be advisable to keep the empty crucibles on this ledge, when they are out of use, as by so doing they will always be free from damp, and less liable to crack when placed in a strong heat.

CHAPTER IX.

ORNAMENTAL LEADING.

Before the introduction of sashes, the art of designing various figures for leading of windows, formed one of the most important and profitable branches of the glazier's business; and it is impossible to view the ancient leading in some of the old English mansions, built in the reign of Elizabeth, and James I. without being struck with the ingenuity and taste displayed by the glaziers of that period. Many of the specimens of leading in the ancient gothic windows would excite astonishment in the glaziers of the present time; and though the introduction and general use of sashes in all modern structures does not render ornamental leading of so much service now as it was formerly, yet the revival of the art of staining glass will inevitably cause the glazier to turn his attention to this neglected branch of his business, particularly if he is required to work upon the windows of a church erected in the Gothic style of architecture. When it is considered that the beauty of the interior of an apartment greatly depends on the elegance of the window by which the light is admitted, as the eye will naturally be attracted towards it previous to any other object, it will account for the great labour and expense formerly bestowed on leading; and the eye at all accustomed to examine the effects produced in ancient windows by ornamental leading, will at once see the cause why the interior of modern churches looks so tame and unfinished, however highly the graining and tracery may be worked by the modern mason. The windows always occupy the largest and most important space, and they are generally left without the slightest attempt at ornament or adaptation to the style of architecture of the building.

There can be no doubt but the glaziers of the present day would soon be able to equal, if not exceed the ancient workmen; and as the erection of cottages in the Gothic style is now the prevailing taste, the art of ornamental leading will again become fashionable, particularly for hall lights and staircase windows, where stained glass is introduced.

It would be almost impossible at the present time to refer the working glazier to many existing ancient specimens of his art, as the effect of time and the introduction of sashes have nearly caused them to disappear; but among other curious books which the author of this work has had access to in the course of his research into the ancient writers on alchemy, chemistry, and glass working, one remains on the art of leading, as practised in the reign of Queen Elizabeth: it is written by Walter Gedde, who was employed in glazing most of the royal and public buildings in that and the succeeding reign. The date of the publication is 1615: it contains a great number of draughts for all kinds of windows, with very brief instructions how to form them. As this is probably the only work ever produced on this subject, the insertion of the author's introduction, which shews the consequence he attached to it, cannot fail to be interesting. The title is—"A Book of sundry Draughts, principally intended for Glaziers; whereunto is annexed the manner how to anneal in glass: also the form of the furnace, and the secrets thereof. 1615.

"The author to the willing practitioner of glazing and annealing in glass.

"As the principal beauty and countenance of architecture consists of outward ornaments of light, so the inward parts are ever opposite to the eyes of the beholder, taking more delight in the beauties thereof, being cunningly wrought, than any other garnishing within the same; to which purpose is set down, in this variety of draughts, some ordinary and plain, others curious and pleasant. And although it may seem to those that are expert in glazing, that some of these draughts are needless, being so plain and in use, not deserving in this sort to be published; yet do I, in friendly courtesy, notwithstanding, admonish that it is most needful, giving choice to the builder, both for price and draughts of work, which by no understanding can the glazier so sensibly demonstrate his freat, as by shewing his example of draught; for by such shew the builder shall know what to make choice of, for whose ease and furtherance only I have published this practice of glazing; knowing that though the expert masters may have these several draughts, yet that many workmen have not got them at all. And, for further benefit of the practitioner, there is annexed diapering to them all, either to be wrought or left, as it shall please the builder, most pleasant to all that are willing to have the same: therefore have it not in light regard, for the use thereof will give you great delight, and worthy to be practised, as a special ornament to building, and will beautify the glaziers' work, be they ever so expert. So by observing the rules here set down, the master and workman shall not only see a plain way to imitate and follow these draughts; but the simplest and unskilled apprentice shall reap full and perfect understanding thereby. Praying the Almighty God to bless your labours in following the same.

WALTER GEDDE."

This pious and sensible introduction is followed by the usual instruction in forming the most common geometrical figures, and a description of the instruments required in drawing them. The same figures are contained in Plates XXXI. and XXXI*. consequently the insertion of Gedde's instruction would be superfluous. The patterns or draughts are there given, many of which are very curious, and all of them must have been of great service to the glaziers of his own time. This work has so far exceeded the limits originally proposed that it will be impossible to give many of them. Those selected are not the most difficult of curious specimens, but those which are most useful in the present day.

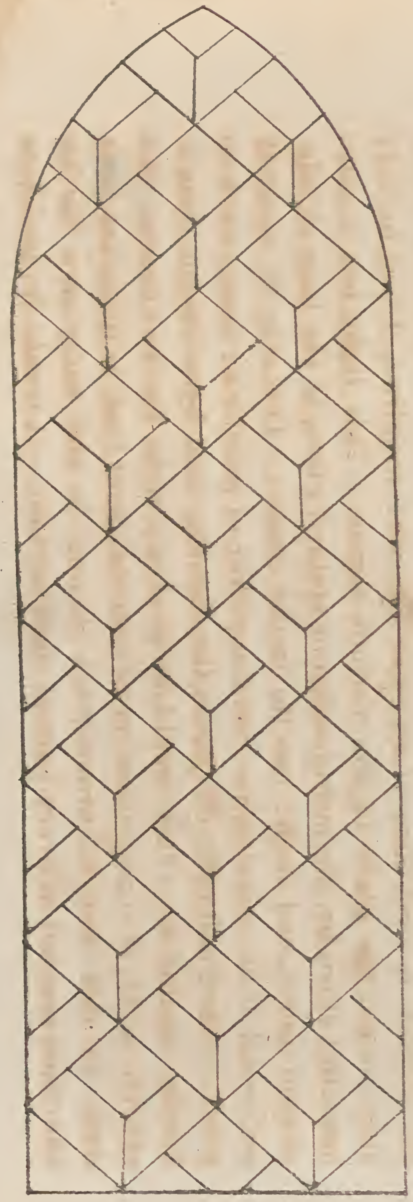
By referring to Plate LXVI. two lancet-shaped lights are seen. No. 1. is a very simple pattern, and quite as easily cut as the small lozenge-shaped quarries now in use, and have a much better appearance in a large window. The introduction of stained glass into the diamond-shaped pieces, and the remainder in ground glass, forms a very neat window, and would be a cheap and durable ornamental light for a staircase, that could be executed by any glazier.

No. 2. is more ornamental; but the pieces are so well designed, that though it appears at first sight to be a very elaborate window, yet if the pattern is first formed on paper the size required, it will be very easy to cut the glass in the various forms. This light has a most beautiful effect by the introduction of stained glass, in the long skittle-shaped pieces, and in the rosette in the centre. This may be entirely pot metal if the glazier has not the power of producing fancy work on glass, as the leading itself forms the figures, and becomes an opaque border around it. This would be a cheap light for the chancel of a church, and it is really a matter of astonishment that so little has been done in this way of ornamental glazing in the many new Gothic churches erected in every part of the kingdom. It would be invidious

LEADING,

Plate LXVI.

1



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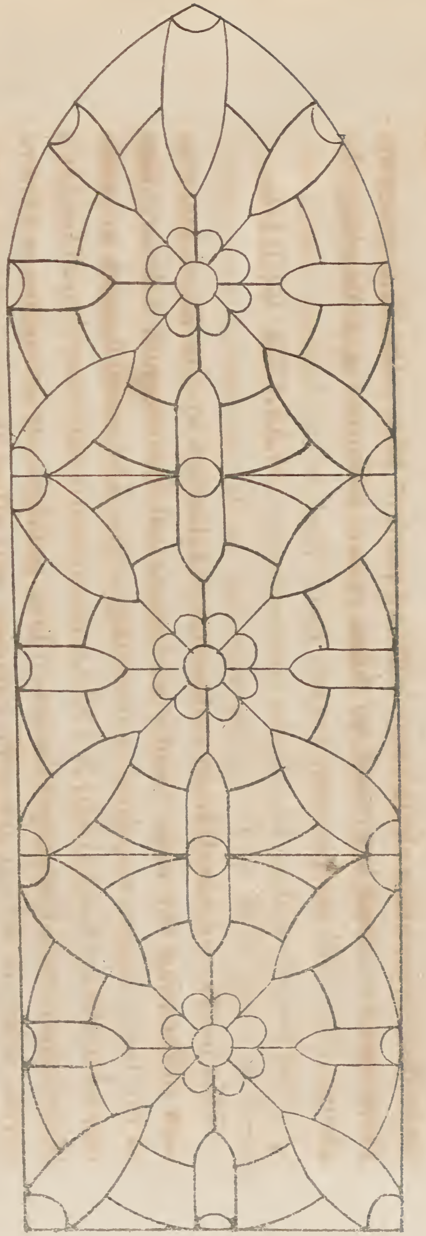

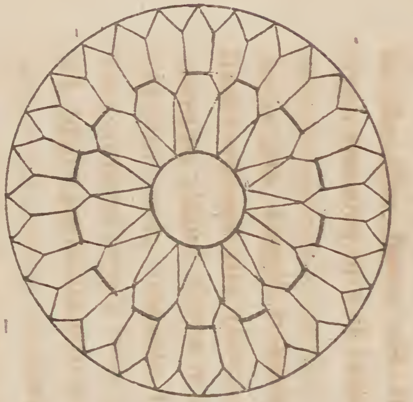

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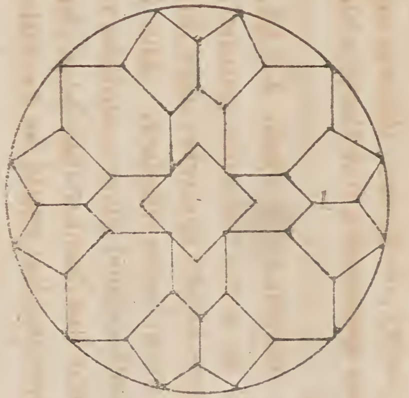
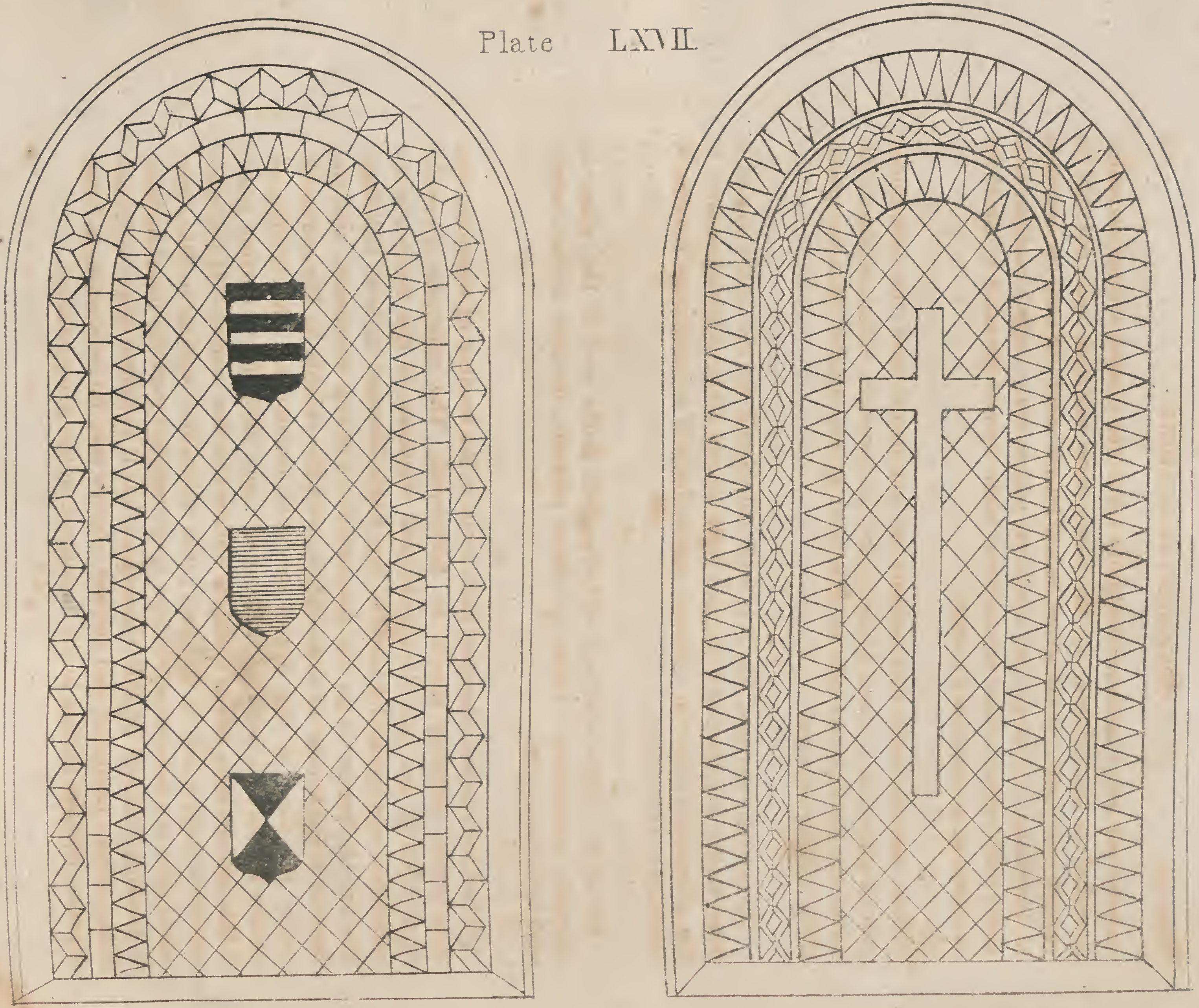


4

LEADING.

Plate LXVII.



to point out any particular buildings; but the glazier whose attention is called to the subject, by the hints here inserted, will not fail to remark and profit by the error in any future work he may be engaged in, particularly in large east windows, which, from their situation, it is always desirable to have ornamented with stained glass, if it could be executed at a moderate expense.

This pattern, with four colours of pot metal, and the remainder ground glass, has a most pleasing and picturesque effect, without the aid of the painter, and can be executed by any glazier, at a comparatively trifling expense.

The circular pattern, No. 3. is well calculated for the bull's eye of a large Gothic window, or a circular light in any style of architecture; it has a beautiful effect in colours, particularly if a handsome rosette is inserted in the centre.

No. 4. is a good common pattern, that looks well if the glass is properly contrasted. Either of these patterns divided in the centre make good fanlights.

It has been before observed that, even in the leading of windows, the style of the building should be preserved. The examples given in Plate LXVII. are two circular-headed windows, in the Saxon, or as architects now generally term it, the Anglo-Norman style of building. The outside border is in the form of the zig-zag ornament, and the third or inner border of the window, with the shields in the centre, is nearly the form of the dental or tooth ornament. The intelligent glazier will at once see that there is no more difficulty in cutting glass to this pattern than in the common squares in the centre. If the window were merely left in common plain glass, the leading in this style would give it a decided advantage in appearance over the usual method of leading windows of this character; but if coloured glass is introduced, a very beautiful and correct window may be formed, at a little expense, without calling in the assistance of the glass painter.

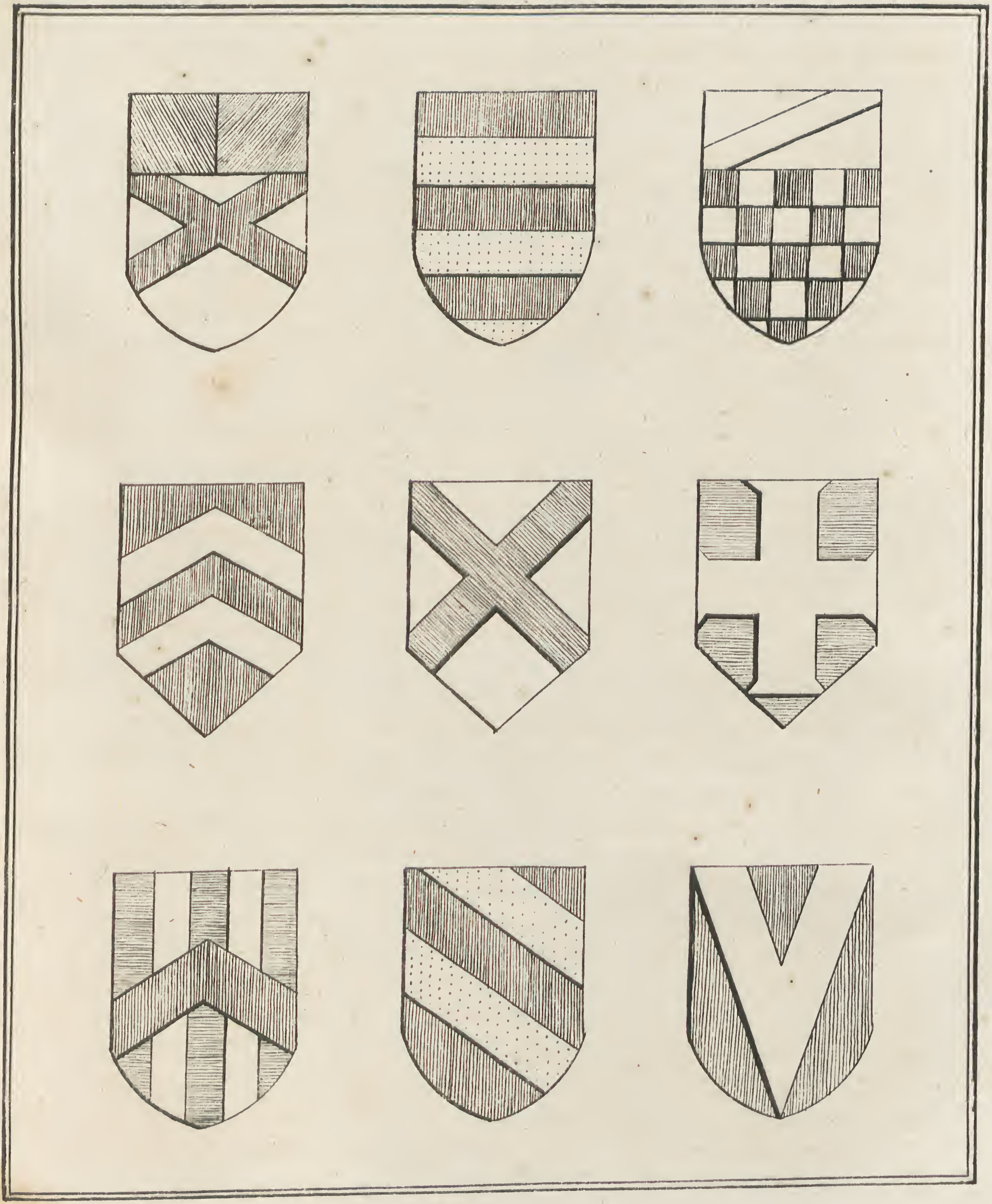
The zig-zag border should be filled with orange stain, the spaces left in ground glass. The orange stain is not only the best on account of its being the cheapest colour (it can be rendered nearly as cheap as ground glass by those who make their own stains), but it is always advisable to get a light warm colour next to the stone work. The plain border should be a deep green pot metal. The tooth ornament, at the third border, should be the red stain, No. 2. This will contrast very well with the green on the one side, and the ground glass on the other, and the whole forms a very rich, yet chaste and appropriate bordering, leaving but a small part of the lights to be filled with common or ground glass. The effect of this window will be greatly heightened if shields, bearing arms, are introduced in the centre.

In embellishing a public building, there are many gentlemen who would willingly pay for the emblazonment of their own arms on glass as their contribution towards the adornment of the windows, who would reasonably object to incurring the expense of contributing towards a window in which they were no way interested. Where this object can be obtained, the glazier will have no difficulty in producing a very beautiful window; but in cases where there are no persons who will contribute, shields may still be introduced in pot metal or plain stained glass by due attention to the leading only, as may be seen by shields in the centre of the window under consideration. It is not, strictly speaking, incorrect to have the shield of any form used in heraldry; but as modern windows are always intended to imitate ancient ornaments, it will be better for the glazier to confine himself to the form of shields generally seen in old windows, which are those contained in Plate LXIV.

The glazier who has read attentively the short notice of heraldry inserted in this work, will be at no loss to discover the colours of the glass with which these shields are filled from the way in which the lines run; he will likewise be sure that he is inserting shields, bearing true heraldic figures, which any glazier can execute without the slightest knowledge of drawing, nor is there any difficulty in cutting the glass to form them.

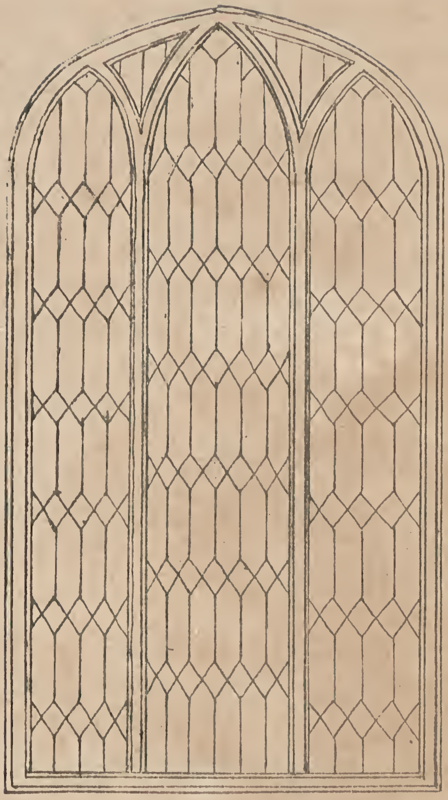
SHIELDS FOR LEADING.

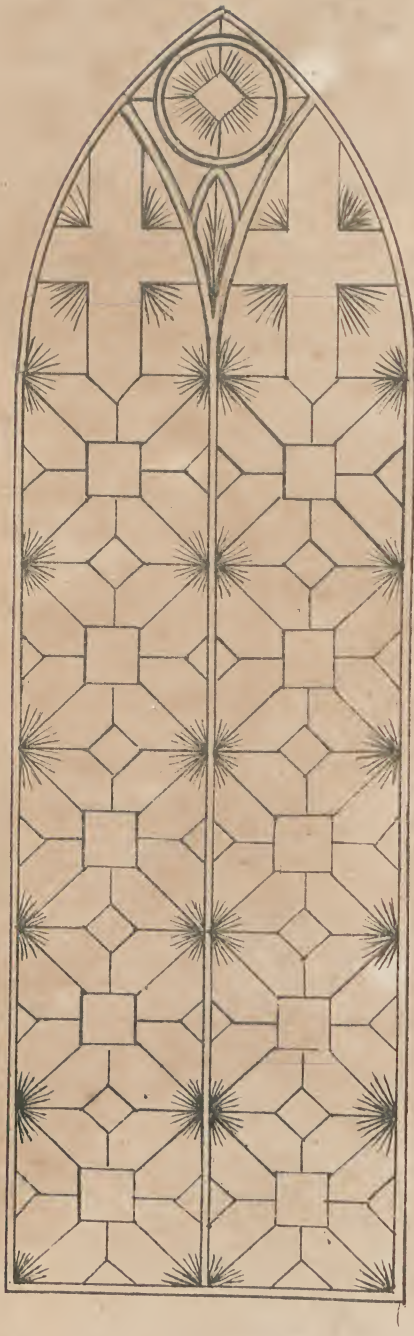
Plate LXIV.

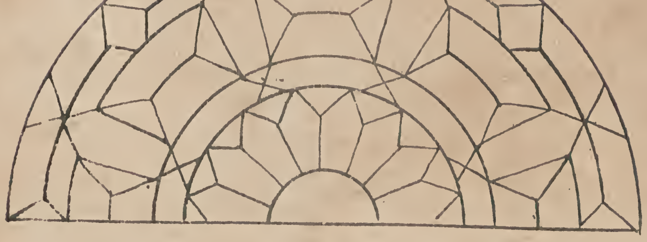


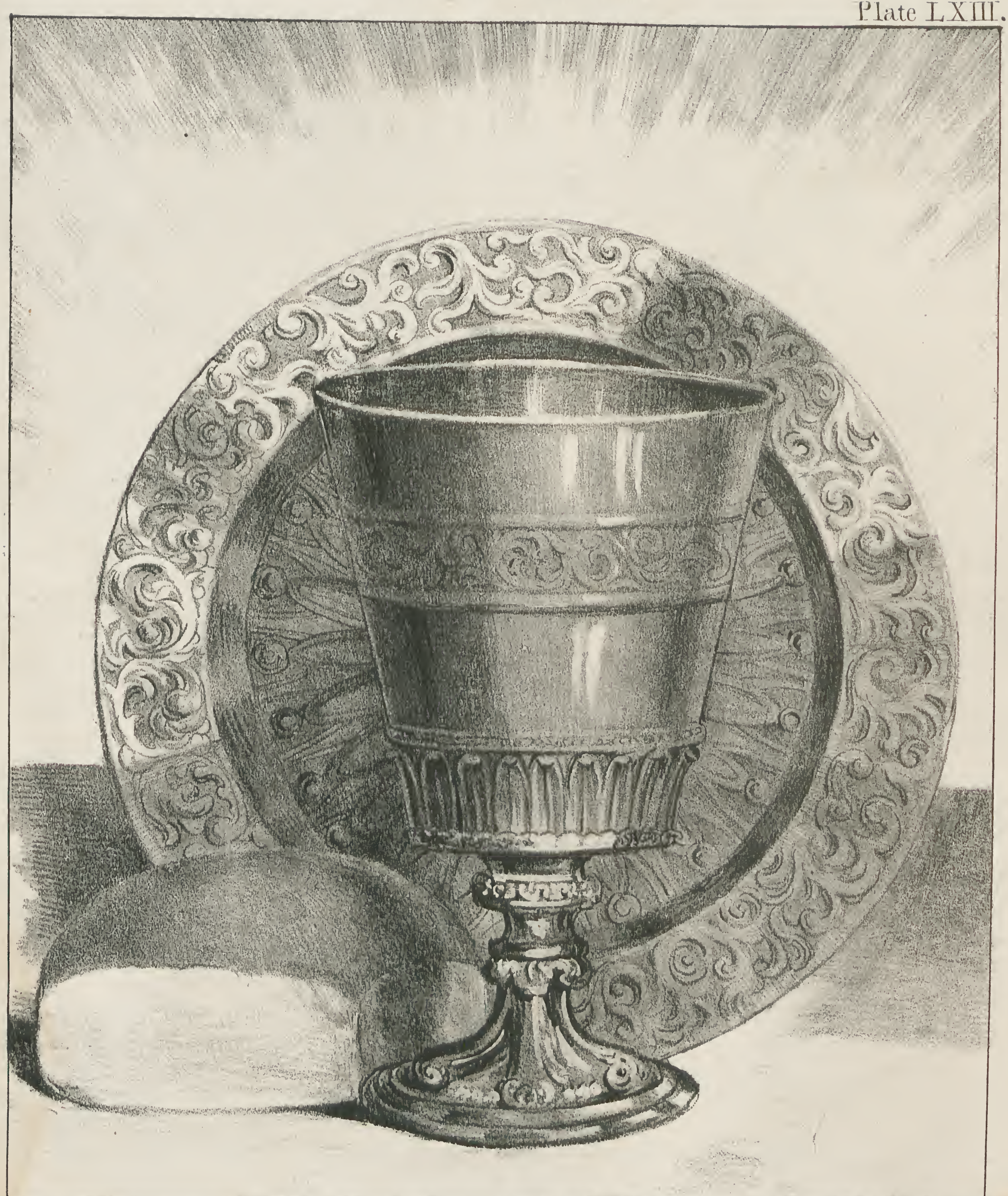
LEADING.

Plate LXVIII.









STAINED GLASS.

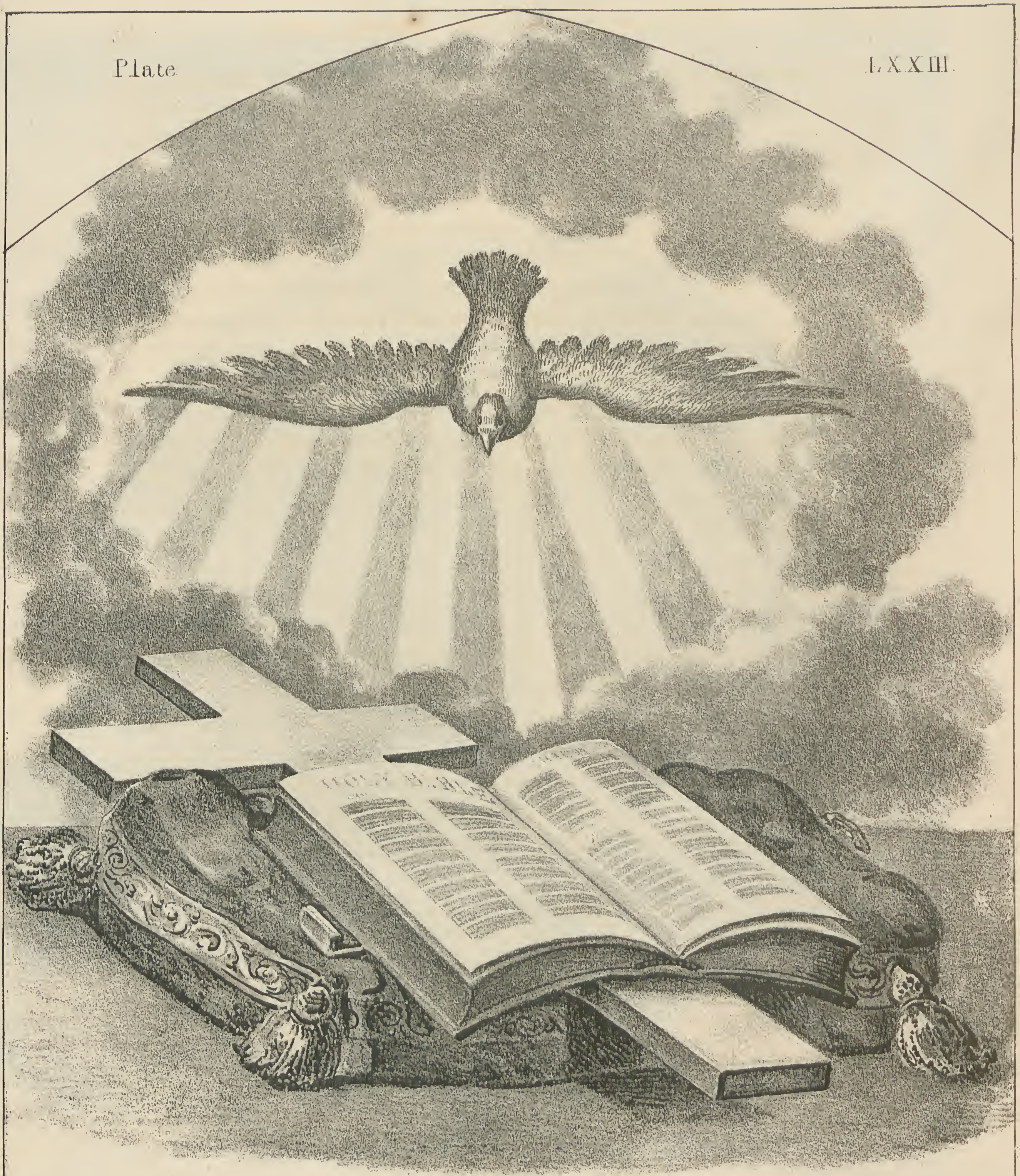


Plate LXXIII.

The second window in Plate LXVII., with the cross in the centre, is another in the same style as the first. The detail of the centre border is a little more elaborate, but will form a very pleasing ornament if the colours are properly contrasted. The cross in the centre, which should be formed of red stained glass, on a white ground, is a very appropriate ornament to an east window over the communion table; and even if figures are introduced in a window it will lessen the expense and heighten the effect, if the border is formed with pot metal, and enriched with leading. Circular-headed windows have a beautiful effect if the upper part is filled with what is called a Catherine-wheel light, like Fig. 3. Plate LXVI., particularly if the centre is filled with appropriate ornaments according to the character of the building. If it is a chancel window of a church or chapel, the paten and chalice contained in Plate LXIII. will be found well adapted for the purpose, and a subject easily executed. Plate LXXIII. is also very appropriate for this purpose.

Should the glazier be required to give a pattern for a stained glass chancel window, he will find subjects of this sort answer his purpose much better than figures. If the window is not divided by mullions, the pattern now under consideration might be made to fill all the space within the border of either of the windows.

In Plate LXXIII. if the dove is placed higher, and the rays of light proceeding from it are made longer, the size of the bible, &c. may also be increased to the dimensions required.

Plate LXVIII. contains three specimens from Walter Gedde's patterns. The leading of the flat arch is introduced as a better method of leading a window in common glass than the usual diamond-shaped pieces: the small quarries are fitted with coloured glass; and it forms a very neat window. The lancet-shaped window is divided into large compartments, but not too large to be held together by leading. This pattern will look very well even in plain glass, but will have a beautiful effect if the small squares are filled with handsome rosettes.

The lower figure is intended for a fan-light, but if properly varied with stained glass will have a beautiful effect, either in Grecian or Gothic architecture.

It will be observed that in the third pattern there are rays proceeding from the corners of every square. These are inserted under the idea that the window is to be executed in ground and stained glass. The mark at the corners is called diapering on the ground glass. It is done by using a strong spirit varnish upon the glass, which will, where it touches, restore the glass to its transparency. Flowers, or any other figures, may be produced by the same means. This method is not so durable as that given in the directions for diapering on glass by means of colour, but it will last many years, and it is doubtful if it could be entirely removed by regrinding the glass.

It would require a much larger volume than this if the examples of leading from ancient windows, which are still in existence, were given; but the glazier who wishes to excel in this art, and has an opportunity of displaying it, will do well to copy the leading of the windows in York Minster, particularly those in the vestibule and chapter house. There are likewise some beautiful examples of leading in the windows of Christ Church and New College, Oxford.

CHAPTER X.

SIGN PAINTING, LETTERING, &c.

The remarks that have been made on herald painting will, in most cases, apply to sign painting: the degree of execution will, of course, depend on the knowledge of drawing and colouring possessed by the painter. The fault that sign painters most easily fall into is that of attempting subjects too difficult to perform, and which, when executed, are too complicated for a sign board.

Signs should only have a single figure (unless it is a compound sign, such as the hare and hounds, &c.) This should be strongly marked, and put in strong light and shade, according to the distance at which it is to be seen; all objects around it should be unobtrusive, and as simple as possible. Nothing should attract observation but the principal figure. There are few sign painters can devote any great length of time to the study of the human figure, or animals, from nature; it will in general, therefore, be much better, in subjects where figures are required, for them to copy the works of different artists who have become eminent in their profession, rather than trust to their own designs. If the subject requires allegorical figures, such as Hope, Fortune, Britannia, &c. the frontispieces to many modern works on history and geography will furnish beautiful figures which may be used with great advantage by the sign painter who understands the method of enlarging the figure by squares to the size required; nor need he be fearful of producing them with sufficient force and delicacy, if he is careful in drawing them, and keeps his shadows from becoming black and muddy. The best general flesh tint that a sign painter can use is Indian red and flake white, mixed with a very little yellow ochre. This may be shadowed up with umber to the strength required: the flesh tint and the umber will give the middle tint and the shade; the roundness, or parts that project, will receive the strong light, which may be formed with flake white and vermilion; with the latter colour the red on the cheeks and lips is produced, which will answer much better than lake or carmine; and the fewer colours the sign painter uses the less likely he is to soil and confuse them. The darkest touches may, in all cases, be supplied with vandyke brown; this should not be used till the first colouring is dry. The painter will find that it will be better to keep the first colouring thin upon the board or canvass. The lights in the second colouring may be applied as strongly as possible. If the shadow in a face appears too light, the opaque dark tint must not be used in deepening the colour, as that would cover the penciling and disfigure the work. A thin transparent glazing colour must be scrubbed over the part with a camel-hair pencil till it is reduced to the proper tone.

The rules laid down by the old masters for disposing of the figures are as follow:—

1. Draw the outline of the garments lightly and with care, for the principal beauty of every picture depends on the correctness of the outline. Draw the large folds first, and from them draw the smaller folds, but take care that they do not cross each other.

2. Let the folds of the garments fall according to the position of the figure, so that the form of the limbs may be seen under it. The closer the garment sits to the body the narrower and smaller the folds must appear.

3. Every fold should be drawn with two lines; that towards the light very thin, and the one in shade strong and bold. The largest folds

generally continue through the whole garment, the smaller branch from them, and dissolve into the general mass.

Drapery, like all other things, must be put in light shade and middle tint: the middle tint is the general colour of the whole. The shade will be at least four shades darker than the middle tint, and the light four shades lighter. Fine linen, sarsnet, satin, &c. will require intermediate tints between either of these three, but their true strength can only be found by practice.

The same method must be followed both in white and coloured drapery. Thus, suppose a figure of Hope to be clothed in a blue garment, sitting loosely on the figure, and part of it flowing in the wind. The painter would first draw the outline as before directed, then taking a small quantity of Prussian blue on the end of the palette knife, he would mix it with white till it assumed the tone of colour required. If he is working from a copy, he can compare a little of the colour on the end of the palette knife with the drapery of the picture, and if it appears a little lighter he may be sure that it will dry nearly the colour of the original, as all colours dry darker. With this colour he will go over every part of the drapery that is not in the extreme light or shade.

When the outline is thus far filled up, mix a tint of Prussian blue and white, letting the blue preponderate, so that it is four or six times deeper than the first tint: with this go over every part that is in shade. Then, with the blue and white, mix a tint four times lighter than the colour first laid, and go over every part that appears to receive a strong light. The painter who has been labouring to produce folds, without having any fixed plan of proceeding, will be astonished at the ease and beauty of their appearance by this method. The colours should be suffered to get dry and hard before they are touched upon again. Then, if it is silk, or any glossy substance, it may require to be touched in parts with a lighter tint in the light, and a darker in the shades, according to the copy or taste of the painter. The same method would be equally successful in red, green, or any other colour.

A single figure of Hope, well drawn and properly coloured, made leaning on an anchor, part of which only should be seen : Hope should be made looking towards heaven ; and the painter of taste will make a gleam of light break from the dark clouds, and give light to the face. This will be far more expressive of Hope than a whole fleet seen in the back ground, with boats and other objects crowding to the shore, which would not only give a great deal of trouble to the painter, but also spoil the harmony of the picture.

Gilding may be introduced with great propriety in sign painting, as the object is not to produce chaste colouring, but to attract the eye by show and glitter. Thus Britannia may be depicted in a golden helmet, and the armour covering the bust may likewise be gold, shaded with burnt sienna, umber, or any other warm colour.

Animals, if drawn in their natural colours, should have an appropriate back ground calculated to show the figures to advantage : if they are not in natural colours, or are depicted in any metal, such as the blue pig, the silver lion, the golden eagle, &c. as they were no doubt originally part of the arms of some nobleman, they should always, as before stated, be drawn on a shield, and never have a natural back ground.

It would be impossible to notice every subject that may be used to form a sign, but in order to give the painter an idea of the mode pursued by Morland, Barret, and other animal painters, in drawing and colouring from nature, four subjects are introduced in Plate LXXII. which are the most common animals used in sign painting. Whether the painter enlarges a print by squares, or draws the figure without them he will find it necessary to commence by lightly sketching the head, then taking the outline from the neck along the back to the tail of the animal. The outline of the lower part of the body should then be

SIGN PAINTING.

Plate LXXII.

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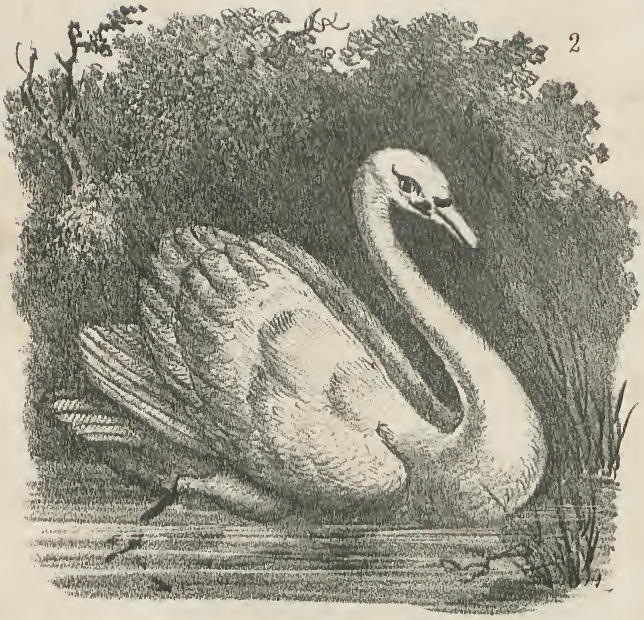

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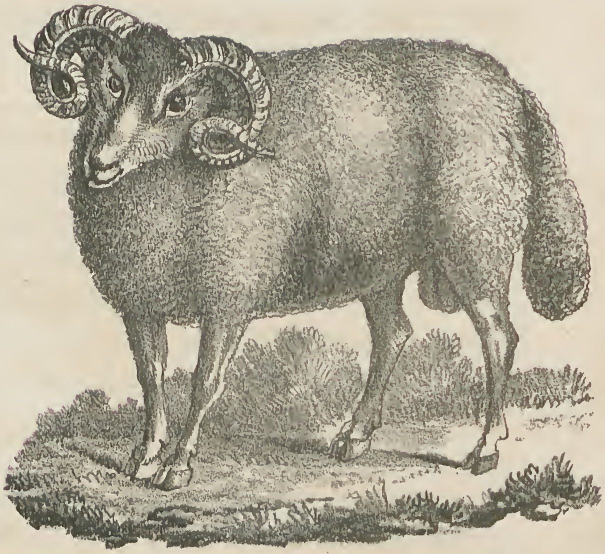

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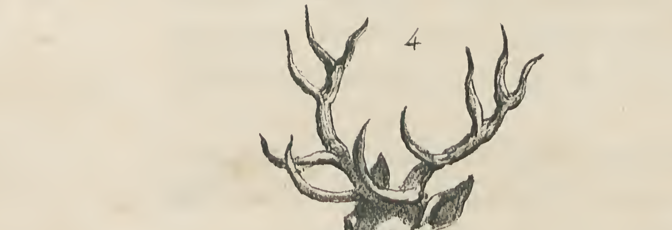

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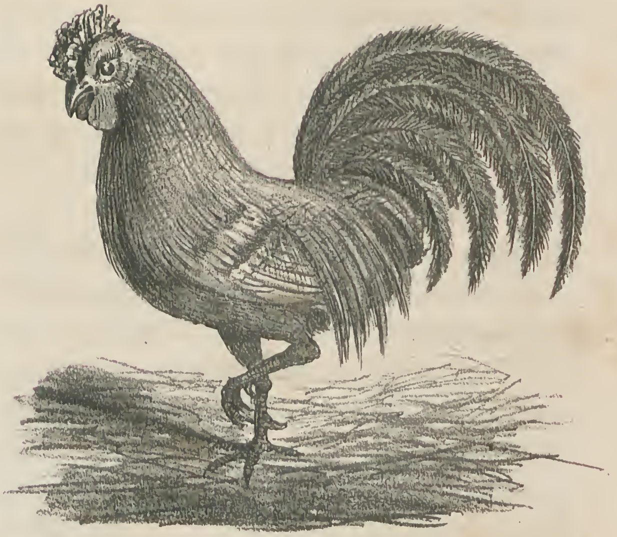

lightly sketched, and likewise the outline of the shoulder and legs: all this should be done very light, in free flowing lines, with a crayon formed with white pipe clay. This rough outline will determine the size, and the painter will examine and amend it in every part before he commences an accurate drawing of the figure. When the true position of every part is determined, commence drawing the head, making out every part, and marking the shadows with the colour with which the animal is shaded.

The ram in Plate LXXII. is coloured with a tint, made with yellow ochre, venetian red, and flake white, so that the tint may not be too red or too yellow, but both so tempered by the white that it assumes the requisite colour, which must be determined according to the judgment of the painter: this will be the middle tint. The shade will be made with vandyke brown and white, and with this colour all the parts may be drawn before any other colour is applied. The middle tint may then be laid on in every part, working it over the edges of the shade, so that they blend and soften together. The legs and feet must be correctly drawn and shaded. The horns should likewise be strongly marked with vandyke brown, and touches given in the light parts with the middle tint. When the figure is filled up in this way it is said to be in dead colour, because it has neither the strong light or shade, which give animation and spirit to the picture.

The sky and the landscape, forming the back ground, should now be added. The sky should be kept very light; it may be painted with Prussian blue, mixed with white, bringing it very carefully round the outline of the figure, so that it does not touch it, as the brown of the outline would make the sky muddy, and totally spoil it. As the sky approaches the horizon, it may lose its blue colour, and become more yellow, till it is quite lost in the bushes behind the ram. The slight masses of foliage may be dabbed in with a little Prussian blue and king's yellow, for the light parts, and blue and indian red for the parts in shade. The trees need not be painted in strokes, but dabbed with the point of the brush with great freedom. They will have a much better effect than if great care was used in bringing up the foliage, which would be quite lost in this style of painting, which is always exposed to the weather, and seen at a certain height.

The ground upon which the figure stands may be marked with dark brown, formed with venetian red and black, the light parts with yellow ochre, white and red, with a touch of green in the foreground. All this does not require much labour, but some taste, and can be as well painted at once as if it was touched upon fifty times.

When the dead colouring of the figure is quite dry, a tint may be made of yellow ochre and white, and dabbed on thickly with the end of the brush on the parts that are most prominent. This will give the shaggy woolly effect that is required in this animal; all the dark parts may be touched up with vandyke brown in the same way, particularly the forehead. The tip of the nose, the ball of the eye, and a touch on the feet, must be made with black and white, tempered to form a very dark grey. The touches should then be given to the horns, and the work is finished.

If the horns, or any other part is to be gilt, it will be advisable to lay on the gold as soon as the outline is made perfect with the pipe clay, before any oil colour is applied, as it will be a long time before the picture is so thoroughly dry that the gold will not adhere to any part of it, and it is difficult to remove it without spoiling the work. When the picture is thoroughly dry, give it two coats of good oil varnish, and let it get quite hard before it is exposed to the air.

The swan is a very common object for a sign, and if well painted has a beautiful effect, without a great deal of labour. The ground of the board should be painted of a light stone colour, so that it may form the middle tint of the bird. Commence with the head and neck, and proceed regularly to the parts of the body. The shadows are all put in with a tint formed with black, white, and a little yellow ochre. This may be laid, or rather scumbled thinly, in all the parts in shade; the light parts with white, lowered with a little yellow ochre: this will form a good dead colouring. The back ground should be dark, formed with indian red, prussian blue, and yellow ochre, touching it in parts with indication of foliage rather brighter, but not in any degree so light as the figure. The water is drawn at first with black and white, taking care to keep the reflection of the figure upon it. The weeds may be spirited touches of indian red and green: the board should then be left to dry.

The second process is to get flake white as pure as possible, and lay it on in strokes or hatches on all parts that shew quite white, brushing them one into the other with the softener; this will produce a beautiful feathery effect, and will be easily executed. The same means may be used on the dark parts, particularly on the wings and tail, letting the lines run regularly, and be softened together with the badger-hair softener.

The painter may suppose that both the light and shade on the swan are too harsh, and that in nature the bird is rather a cream colour than white; the observation is correct, but the varnish will glaze upon the figure, and give this warmth, which would be too yellow and dark if it were done without considering the effect of the varnish. The water must have a glaze of prussian blue and raw umber passed over it before the varnish is applied.

There will be no necessity to go into the production of the two remaining figures minutely (nor will the limits of this work allow it); sufficient has been said upon the two first to shew the intelligent painter that a great deal may be done in a little time in sign painting, if he proceeds regularly to work. All the verbal instruction that could be given would never make a painter without practice, and that practice may give rise to a method of his own, which may be superior to any other. The means here laid down are intended for those painters who have to make their first essay in sign painting, and to them they will be found of service.

During the progress of this work the author has been favoured with numerous communications from correspondents; some imparting, and others requiring information. To the former he begs to return his most grateful acknowledgments; many of the latter have been answered either directly or through this work: some few have to be answered, and as the answers may be of consequence to many in the profession, they will be inserted in the remaining pages of the work.

Writing or lettering, either in gold or colour, is not exactly the province of the decorative painter; but in answer to those who request to know if there are any regular rules for producing letters, the following observations may be of service, as they are given upon the mathematical principles by which the type-founders are governed in the formation of letters.

If the student procures an alphabet of well formed roman capitals, he will find that twenty-two of the letters are formed in a perfect square, viz. A B C D E F G H K L N O P Q R S T U V X Y Z.

Letters I and J are formed in an upright parallelogram, half the size of the square; and the letters M and W in an horizontal parallelogram, one-third larger than the square. The spaces within these figures contain the whole letter: the top and bottom of the letter always project the width of the thick line of the letter. The same rule is observed in the formation of the E and F. These letters, and A B H X Y are either divided or have projections from the centre. Fashion has varied this rule, and placed the divisions nearer the top than the base of the square. The distance at which capitals should be placed from each other, in the same word, is half a square; at the commencement of a word a whole square; and at the space between the divisions of a sentence two squares. Fashion may vary the forms of the letters, making them a little longer or wider, still this is a fundamental guide for their proportions.

The small letters in roman print are half the size of the capitals, with the exception of b d f h k l.; the long line of these letters should be the same height as the capitals. The tails, as in the letters j p q y, descend below the line in the same proportion as the others do above it. The roman s is generally found the most difficult letter to form correctly; it is founded on two circles, forming a tangent to each other.

The foregoing rules for the formation of upright roman letters are equally applicable to slanting letters.

The best writers are divided in their opinion as to the true proportions of italian letters, but the most general rule for producing them is to make the capitals three times the height of the small letters, and the long strokes of the small letters nearly the height of the capitals.

The projecting letters, formed of wood or metal, have of late become so fashionable, that the writers on shop fronts, sign boards, &c. have had recourse to imitating them, and have produced letters in such bold relief, that they look much better than the raised letters; they have a beautiful effect in gold, on a rich rosewood ground. It is difficult to convey an idea of the mode of producing them by a written description, but the following directions will give the painter who resides at a distance from London an idea of them. The flat surface is gold; this is supposed to be the middle tint. The strong light, which is made with yellow ochre and white, is seen on the side of the letter; the upper part of which is in warm shade, as well as the under part. A very strong shadow is seen under this, upon the rosewood, which gives the warm shade all the effect of a reflected light; a more faint shade is seen beyond this. If executed with skill, it is difficult to tell whether the letters are raised or not, without actually touching them.

This method is not only used for flat letters raised from the ground, but also for the beautiful foliated letters that are now becoming so fashionable. The decorative painter who can produce the arabesque patterns contained in this work, will have no difficulty in painting or gilding them, if he observes the proportions laid down for the roman letters.

There is a new method of producing letters by combining various objects: they are extremely beautiful, if well executed, for fancy business; but they require too much skill in their production, and are too expensive, ever to be brought into general use.

REPAIRING AND CLEANING OLD PICTURES.

Picture cleaning is frequently practised by decorative painters, and may be made a lucrative branch of the profession, if properly understood. The painter who has read the first chapter of this work with attention, will find that the pigments used both in oil and water colour painting, are mineral or vegetable matter; and that varnishes for preserving the pictures from the effect of the air are made from different substances, according with the colouring of the picture: if the painting has been properly varnished before any dirt is seen upon the picture, whatever foulness is seen afterwards cannot be upon the painting, but must be on the surface of the varnish that covers it, and it is the business of the picture cleaner to remove this varnish, when the picture becomes dirty or discoloured, without injuring the painting; this he can only do by discovering what sort of varnish has been used upon it.

Many of the pictures of the old masters are varnished with gum arabic, glair of egg, isinglass and sugar candy, or other glutinous substances, easily dissolved in water, from a supposition that they did less injury to the picture, and could at any time be more quickly removed than oil or spirit varnishes; and as any of the glutinous bodies used with water are affected by the dampness of the atmosphere, their surface easily caught and retained the dust and dirt that settled upon them, till, in the course of time, the picture became quite obscured. In such cases the taking off the varnish will generally render the painting entirely clean; the best means of removing it is by using hot water and a sponge. The water may be nearly boiling hot, and used copiously; the sponge may be fastened to a small stick, by way of handle, to protect the hands from the heat of the water. When the varnish appears to be softened, which may easily be known by its feeling soft and clammy when touched with the finger, the water must be used cooler. If the varnish adhere so that it is not easily brought off with the sponge, a gentle rubbing with a linen cloth may be used, the cloth being frequently wrung and wetted again in warm water. When the painting is dry, whatever remains of the varnish may easily be removed by rubbing it with the crum of a new loaf.

Where paintings appear by the above trial to be varnished with gum, resin, or such substances, that cannot be dissolved in water, it is still proper to wash them first with warm water to take off the accumulation of dust from the surface of the varnish. If this does not sufficiently restore the picture, when it is dry, it must be rubbed over with olive oil, made warm; and if any parts appear smeary, or any foulness seem to mix with the oil, pursue the rubbing gently, taking off the foul oil, and adding fresh till the spots are removed. The oil must then be rubbed off with a woollen cloth, and if the picture requires further cleaning, pearlashes may be used in the following manner:—Take one ounce of pearlash, and dissolve it in a pint of water, or take two pounds of woodashes, and add to them three quarts of water, and stir them well in the water once or twice in an hour for half a day. Then, when the earthy parts of the ashes have subsided, pour off the clear fluid, and evaporate it to a quart, or, if it appears acid to the taste, three pints may be left. With either sort of lye, made warm, rub any particular spots of foulness gently, with a linen cloth, till they disappear; but if they are found to remain unchanged by the lye, do not endeavour to take them off by mere force of rubbing, as that would infallibly damage the colours under the spots before they could be removed; for in this case they should be left to be tried by spirits of wine, or the essential oils of turpentine or lemons. Where thick spots seem to give way in part, but yet resist the lye in a great degree, a little strong soap suds may be used with caution; but it should be prevented as much as possible from touching any other part of the painting beyond the spot to be removed; and as the spot disappears the soap should be weakened with water, that it may not reach the oil of the colours in its full strength. If, however, all this is done on a strong coat of varnish, there will be less hazard, and in such cases the washing freely with the woodash lye and a little soap will cleanse the picture effectually, without material damage; but it requires some judgment to know where paintings may be so freely treated, and, if they are of great value, it will be in all cases best to proceed with circumspection, by trying the more simple method first mentioned, before the rougher method is used.

Where spots appear after the use of all the before-mentioned methods, spirits of wine, or essence of lemons, must be applied: the spots should be lightly moistened with them, taking care not to touch any other part of the picture; and the part should be immediately rubbed very gently with a linen cloth, taking care to desist if the colours appear the least affected. After a little rubbing, olive oil should be put on the spot where the essence of lemons has been used, and water where spirits of wine has been applied. If the spot is not wholly removed, but appears to be giving way, the same means must be repeated.

The above means are intended to remove the dirt from the varnish, without touching the picture, which, of course, is the most preferable mode of proceeding, as the painting runs no risk of being damaged; but in some cases the varnish itself has become so opaque and discoloured, that the picture is but little seen; in which case the varnish must be entirely removed by the following means:—Place the painting in an horizontal situation, and moisten, or rather flood by means of a sponge, the whole surface with very strong spirits of wine; this must flow all over the picture, without rubbing. Keep the painting moistened some minutes by adding fresh spirits of wine; then flood the whole surface copiously with cold water, which will wash off the spirits and such part of the varnish as it has dissolved: but in this state all rubbing and the slightest violence on the surface of the picture, would be highly detrimental. When the painting is dry this operation must be repeated, at discretion, till the whole of the varnish is removed.

The above means will generally be found sufficient to cleanse the most disfigured pictures, however valuable, without the slightest injury. But in some pictures, which have been long varnished, the varnish is formed by a composition of oil with resinous gums; if such pictures cannot be brought to a tolerable state, by the means above directed, freely and repeatedly used, the subject is without remedy, for it is impossible to remove an oil varnish without running the greatest risk of spoiling the picture. Some cleaners endeavour to thin the coat of varnish with powdered pumice stone; others apply essence of lemons for this purpose, and then pour on olive oil, which, when rubbed off with a soft woollen cloth, will carry away the essence, with such parts of the varnish as it may have dissolved; but this requires extreme care, and can never be practised without great hazard of destroying the painting.

When a picture has been torn, and part of it destroyed, it will be necessary to strain and line it before any attempt is made to clean it, or the old canvass will not bear the operation. The new canvass must be nailed tight to the strainer, and well covered with stiff glue; the old canvass must likewise be laid flat upon a board, and the parts most decayed be cut out carefully with a penknife. If the picture has been folded, and the part that has been creased has perished, it will be better to cut it away than attempt to repair on the old canvass. When every part is properly trimmed, cover the back of the picture with glue, and lay it on the new canvass; and afterwards turn it with the face downwards, and press it with the hand on the back till the new and old canvass adhere in every part, taking care to strain it as tight as possible. When the canvass is perfectly dry, take the varnish off the picture as before directed: and, when it is quite clean, paint over all the holes and join with a thick coat of flake white, ground in linseed oil. When this is dry, another coat is laid on, and thus continued, one coat after the other, till they are the same height as the original painting.

Some make a putty with the linseed oil and white, and fill up the holes with a small palette knife; others, who wish to make still more speed in finishing the picture, use a putty made with whiting and glue, or parchment size. Neither of these methods can be relied upon, as the putty contracts as it dries, and leaves a space around it, shewing the join, and very frequently falls out altogether; a disadvantage which those who take the time to fill the space with layers of colour are not at all liable to, as the parts so repaired are as firm as any other part of the picture, nor will the colour or varnish sink on the new work, which is always the case if the breaks are filled with putty.

If a picture is only damaged in one part, or has but one hole in it, it will not require to be lined throughout, but merely a piece of canvass, cut rather larger than the hole, glued at the back of it. After cutting out all the ragged parts of the picture that cannot be made to lay smooth, the hole must be filled up as before directed.

If the painter who is mending a picture preserves the scrapings of his palette in what is called a smudge pot, this is perhaps the best cement that can be used for putting on a patch, or filling up a space in an old picture. If this is used it should be raised a little higher than the face of the old painting, as it sinks when dry, or can easily be taken off to the proper level with a knife, and polished with pumice stone. When the patches are quite dry, the colours on each side of them must be accurately matched, and the picture made out in every part. If the painting is a valuable one, it will be advisable to employ a good painter to execute this part of the work, so that the new may not be distinguished from the old.

DAMP IN WALLS.

There is nothing more injurious to pictures than hanging them upon a damp wall; the dampness is generally caused by the salts contained in the mortar, which, being dissolved by the moisture of the atmosphere, spread over the exterior surface of the wall and convey it to any object touching it, quickly rotting the canvass, as it attacks the picture where it has no defence from varnish, and makes its ravages upon it unseen till the evil is past remedy. Hence the large holes found in pictures, which seem to have had great care taken in their preservation, by varnishing and other means. The apartments of the houses in France are generally divided by stone walls, and not by lath and plaster; and as they are very expensively decorated, the curing of damp in walls is an object of greater importance in that country than in England, so much so, that the most scientific chemists have bestowed great pains in providing a remedy. That which they recommend, as the most likely to be completely successful, is to neutralize the salts by the application of sulphuric acid, which will then become something of the quality of water: the damp may be taken away by evaporation or by spreading a thin coat of plaster of Paris (sulphate of lime) over the surface, which will in drying absorb the damp occasioned by the salts, and when the plaster is removed the wall will be dry. In kitchens and underground apartments, where the damp is occasioned by the moisture of the earth, nothing can effectually dry the walls; but the surface may be covered to prevent the damp spreading, by dissolving alum in turpentine and brushing it over the wall about a yard square at a time, and immediately afterwards applying good linseed oil and litharge boiling hot. If two persons are employed, the man with the oil can follow the man with the turpentine and alum immediately, as that dries almost as soon as applied, and drives the damp from the surface sufficiently to enable it to take the hot preparation; the boiling oil must be applied three or four times, till the brush will glide smoothly over the surface, or, as painters term it, the colour will bear out; any oil colour may then be applied in the usual way, and the damp cannot possibly penetrate it.

LACQUERING.

Lacquering is laying on either coloured or transparent varnishes on metals, in order to change their colour, or to preserve it from rust and injury from the effects of damp air, rain, &c.

The most useful lacquer is that used to give brass work the appearance of gold. The following recipe is said to be the best lacquer for this purpose:—Take ground turmeric one ounce; saffron and Spanish annatto each two drachms; put them into a proper bottle with a pint of highly rectified spirits of wine, and place them in a moderate heat for two or three days, shaking the bottle frequently every day: a very strong yellow tincture will thus be obtained, which must be strained through a coarse linen cloth; and then, putting the liquid back into a bottle, add three ounces of good seedlac, finely powdered: place the mixture again in a moderate heat till the seedlac is dissolved, or the greater part of it. The liquid must then be strained as before, and it is fit for use. The bottle must be kept carefully stopped. The colour can be made warmer, or more red, by increasing the annatto; or, if a pale gold is required, it may be omitted altogether.

The quantity of the colouring matter must of course be increased for making tin assume the colour of brass or gold. The above ingredients will make a good lacquer for this metal, used in the following proportions:—One ounce of turmeric, two drams of dragon's blood, and one pint of spirits of wine.

The lacquer for locks, nails, &c. where little or no colour is required, may be seedlac varnish alone, or mixed with a little dragon's blood, sufficient to tinge it. Where a very coarse lacquer is required, take equal quantities of seedlac and resin.

The metal must be made warm and perfectly cleansed before the lacquer is applied. For very fine work it will require three or four coats. Tin will not require above one or two.

Where lacquer is used as a preservative for locks, nails, &c. to keep them from corroding, and not for the improvement of the colour, they must have two or three coats, according to their exposure to the weather.

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